TeleWell
TW-EA501 v2

ADSL2+ Router
4 x 10/100Mbps switch
Firewall

English User’s Manual

CE

Chapter 1 1
1.1 Introducing the TW-EA501 v2 ADSL2+ Router 1
1.2 Features 3
Chapter 2 6
2.1 Important Notes 6
2.2 Package Contents 6
2.3 The Front LEDs 7
2.4The Rear Ports 8
2.5 Cabling 10
Chapter 3 11
3.1 Before Configuration 11
3.2 Factory Default Settings 16
3.3 Username and Password 16
3.4 LAN and WAN Port Addresses 17
3.4 Information from your ISP 17
3.5 Configuring with your Web Browser 18
Chapter 4 19
4.1 Status 20
4.1.1 ARP Table 23
4.1.3 Routing Table 24
4.1.4 DHCP Table 25
4.1.5 System Log 26
4.1.6 Security Log 27
4.2 Quick Start 28
4.3 Configuration 31
4.3.1 LAN (Local Area Network) 32
4.3.2 WAN (Wide Area Network) 35
4.3.3 System 42
4.3.4 Firewall 47
4.3.5 Virtual Server 55
4.3.6 Advanced 59
4.4 Save Configuration to Flash 70
4.5 Restart 71
Chapter 5 72

Chapter 1
Introduction

1.1 Introducing the TW-EA501 v2 ADSL2+ Router

Thank you for purchasing the TW-EA501 v2 ADSL2+ Router. Your new router is an all-in-one unit that combines an ADSL modem, ADSL router and Ethernet network switch to provide everything you need to get the machines on your network connected to the Internet over an ADSL broadband connection.

The TW-EA501 v2 complies with ADSL2+ standards for deployment worldwide and supports downstream rates of up to 24 Mbps and upstream rates of up to 1 Mbps. Designed for small office, home office and residential users, the router enables even faster Internet connections. You can enjoy ADSL services and broadband multimedia applications such as interactive gaming, video streaming and real-time audio much easier and faster than ever before.

The router supports PPPoA (RFC 2364 – PPP (Point-to-Point Protocol) over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516), and IPoA (RFC1577) to establish a connection with your ISP. Your new router also supports VC-based and LLC-based multiplexing.

The perfect solution for connecting a small group of PCs to a high-speed broadband Internet connection, the router allows multiple users to have high-speed Internet access simultaneously.

Your new router also serves as an Internet firewall, protecting your network from access by outside users. Not only does it provide a natural firewall function with Network Address Translation (NAT), it also provides rich firewall features to secure your network. All incoming data packets are monitored and filtered. You can also configure your new router to block internal users from accessing the Internet.

The router provides two levels of security support. First, it masks LAN IP addresses making them invisible to outside users on the Internet, so it is much more difficult for a hacker to target a machine on your network. Second, it can block and redirect certain ports to limit the services that outside users can access. To ensure that games and other Internet applications run properly, you can open specific ports for outside users to access internal services on your network.

The Integrated DHCP (Dynamic Host Control Protocol) client and server services allow multiple users to get IP addresses automatically when the router boots up. Simply set local machines as a DHCP client to accept a dynamically assigned IP address from the DHCP server and reboot. Each time a local machine is powered up; the router recognizes it and assigns an IP address to instantly connect it to the LAN.

For advanced users, Virtual Service (port forwarding) functions allow the product to provide limited visibility to local machines with specific services for outside users. You can set an ISP (Internet Service Provider) provided IP address on the router and then you can reroute specific services to individual computers on your local network. For instance, a dedicated web server can be connected to the Internet via the router and then incoming requests for web pages that are received by the router can be rerouted to your dedicated local web server, even though the server now has a different IP address.
Virtual Server can also be used to re-task services to multiple servers. For instance, you can set the router to allow separated FTP, Web, and Multiplayer game servers to share the same Internet-visible IP address while still protecting the servers and LAN users from hackers.

1.2 Features

- **Express Internet Access – ADSL2/2+ capable**

The router complies with ADSL worldwide standards. Supporting downstream rates of 8Mbps with ADSL, the router is capable of up to 12/24 Mbps with ADSL2/2+, and upstream rates of up to 1 Mbps. Users enjoy not only high-speed ADSL services but also broadband multimedia applications such as interactive gaming, video streaming and real-time audio which are easier and faster than ever. The router is compliant with Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt (ITU G.992.1); G.hs (ITU G994.1); G.dmt.bis (ITU G.992.3); and G.dmt.bisplus (ITU G.992.5)

- **Fast Ethernet Switch**

A 4-port 10/100Mbps fast Ethernet switch is built-in with automatic switching between MDI and MDI-X for 10Base-T and 100Base-TX ports, with auto dection allowing you to use either straight or cross-over Ethernet cables.

- **Multi-Protocol to Establish a Connection**

The router supports PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516) and IPoA (RFC1577) to establish a connection with an ISP. The router also supports VC-based and LLC-based multiplexing.

- **Quick Installation Wizard**

A web-based GUI and quick installation wizard help you easily install the router. Enter your ISP’s information and begin browsing the Internet immediately.

- **Universal Plug and Play (UPnP) and UPnP NAT Traversal**

This protocol is used to enable simple and robust connectivity among stand-alone devices and PCs from many different vendors, and it makes setting up a network simple and affordable. UPnP architecture leverages TCP/IP and the Web to enable proximity networking in addition to control and data transfer among networked devices. With this feature enabled, you can seamlessly connect to Net Meeting or MSN Messenger.

- **Network Address Translation**

Network Address Translation (NAT) allows multiple users to access outside resources such as the Internet simultaneously with one IP address/one Internet access account. Many application layer gateways (ALG) are supported such as web browser, ICQ, FTP, Telnet, E-mail, News, Net2phone, Ping, NetMeeting, IP phone and others.

- **Firewall**

NAT technology supports simple firewalls and provides options for blocking access from the Internet, like Telnet, FTP, TFTP, WEB, SNMP and IGMP.

- **Domain Name System Relay**

Domain Name System (DNS) relay provides an easy way to map a domain name with a user-friendly name such as www.yahoo.com with an IP address. When a local machine sets its DNS server to the router's IP address, every DNS conversion request packet from the PC to this router is forwarded to the real DNS on the outside network.

- **Dynamic Domain Name System (DDNS)**

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname. This dynamic IP address is the WAN IP address. To use the service, you must first apply for an account from a DDNS service such as http://www.dyndns.org/.

- **PPP over Ethernet (PPPoE)**

The router provides an embedded PPPoE client function to establish a connection. You get greater access speed without changing the operation concept, while sharing the same ISP account and paying for one access account. No PPPoE client software is required for the local computer. Automatic Reconnect and Disconnect Timeout (Idle Timer) functions are also provided.

- **Virtual Server:**

You can specify which services are visible to outside users. The router detects an incoming service request and forwards it to the specific local computer for handling. For example, you can assign a PC in a LAN to act as a Web server inside and expose it to the outside network. Outside users can browse inside the web server directly while it is protected by NAT. A DMZ host setting is also provided for local computers exposed to the outside Internet network.

- **Dynamic Host Configuration Protocol (DHCP) Client and Server**

On a WAN site, the DHCP client obtains an IP address from the Internet Service Provider (ISP) automatically. On a LAN site, the DHCP server allocates a range of client IP addresses, including subnet masks and DNS IP addresses and distributes them to local computers. This provides an easy way to manage the local IP network.

- **Rich Packet Filtering**

This feature filters the packet based on IP addresses as well as Port numbers. Filtering packets to and from the Internet provides a higher level of security control.

- **Static and RIP1/2 Routing**

An easy static routing table or RIP1/2 routing protocol supports routing capability.

- **Simple Network Management Protocol (SNMP)**

SNMP allows convenient remote management of the router.

- **Web-based GUI**

A web-based GUI offers easy configuration and management. User-friendly and with on-line help, it also supports remote management capability for remote users to configure and manage this product.

- **Firmware Upgradeable**

You can upgrade the router with the latest firmware through its web-based GUI.

- **Rich management interfaces**

Supports flexible management interfaces with a local console port, LAN port, and WAN port. You can use terminal applications through the console port to configure and manage the router, or use Telnet, web GUI, and SNMP through LAN or WAN ports.

Chapter 2
Product Overview

2.1 Important Notes

Warning

- ✓ Do not use the router in high humidity or high temperatures.
- ✓ Do not use the same power source for the router as other equipment.
- ✓ Do not open or repair the case yourself. If the router is too hot, turn off the power immediately and have it repaired at a qualified service center.
- ✓ Avoid using this product and all accessories outdoors.

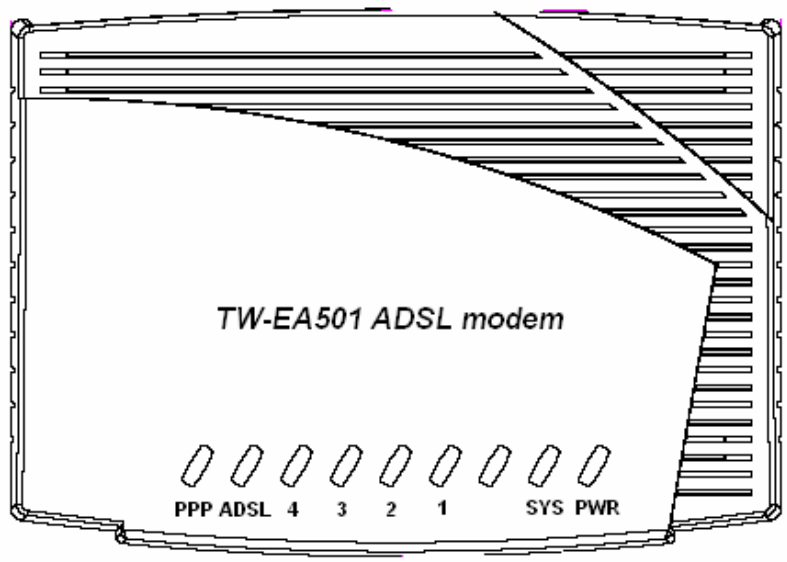
Attention

- ✓ Place the router on a stable surface.
- ✓ Only use the power adapter that comes with the package. Using a different voltage rating power adaptor may damage the router.

2.2 Package Contents

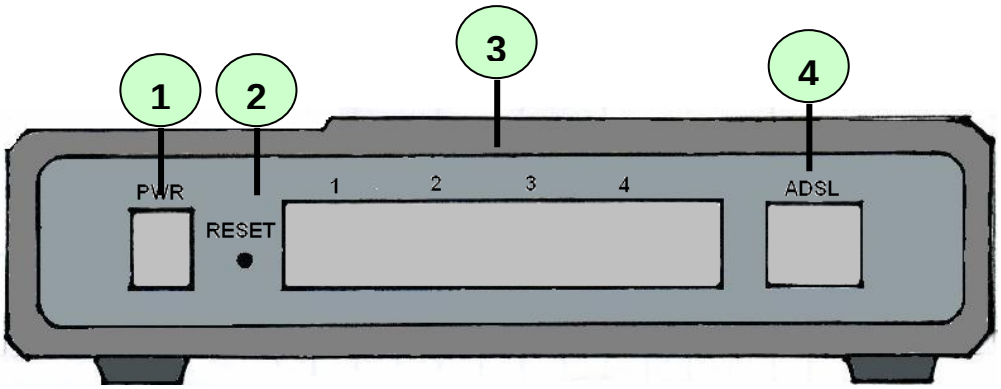
- ADSL2+ Router
- manual
- RJ-11 ADSL/telephone Cable (1.8M)
- Ethernet (CAT-5 LAN) Cable (2M Straight)
- AC-DC power adapter (12V DC, 1A)

2.3 The Front LEDs



LED		Description
1	**PPP :**	Steady glow when there is a PPPoA / PPPoE connection.
2	**ADSL:**	Lights when successfully connected to an ADSL DSLAM (linesync).
3	**LAN Port 1-4:**	Steady glow when connected to an Ethernet device. Glows green for 100Mbps; Orange for 10Mbps. Blinking light when data is Transmitted / Received.
5	**SYS :**	Lights when the system is ready.
6	**PWR :**	Lights when the power is ON.

2.4The Rear Ports



Port		Meaning
1	**PWR**	Connect the supplied power adapter to this jack.
2	**RESET**	After the device is powered on, press it to reset the device or restore to factory default settings. **0-3 seconds**: reset the device **6 seconds above**: restore to factory default settings (this is used when you can not login to the router, e.g. forgot the password)
3	**LAN** **1X — 4X (RJ-45 connector)**	Connect a UTP Ethernet cable (Cat-5 or Cat-5e) to one of the four LAN ports when connecting to a PC or an office/home network of 10Mbps or 100Mbps.
4	**ADSL**	Connect the supplied RJ-11 (“telephone”) cable to this port when connecting to the ADSL/telephone network.

The detail instruction in Emergency/Failure Recovery Button

1. Recovery procedures for non-working routers (e.g. after a failed firmware upgrade flash): Hold the *Emergency/Failure Recovery Button* on the back of the modem in. Keep this button held in and turn on the modem. Once the lights on the modem have stopped flashing, release the *Emergency/Failure Recovery Button.* The modem's emergency-reflash web interface will then be accessible via http://192.168.0.254/ where you can upload a firmware image to restore the modem to a functional state. Please note that the modem will only respond via its web interface at this address, and will not respond to ping requests from your PC or to telnet connections.

   2. Recovery procedures for a lost web interface password:
   After turning the router on press the *Emergency/Failure Recovery Button* on the back of the modem, and hold the button in until all lights on the modem flash and it reboots with factory default settings. The login will be reset to *admin* and the password will be reset to *admin*, and the modem will be accessible via its default IP address at http://192.168.0.254/

Before powered on the router to enter the recovery process. please configure the IP address of the PC as 192.168.0.1 and process step by step.

1. Power the router off.
2. Hold the " Emergency/Failure Recovery Button".
3. Power on the router. Then Router's IP will reset to Default (Say 192.168.0.254)
4. Download the firmware.

2.5 Cabling

One of the most common causes of problems is bad cabling or ADSL line(s). Make sure that all connected devices are turned on. On the front of the product is a bank of LEDs. Verify that the LAN Link and ADSL line LEDs are lit. If they are not, verify that you are using the proper cables.

Ensure that all other devices connected to the same telephone line as your router (e.g. telephones, fax machines, analog modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including frequent disconnections.

Chapter 3
Installation

You can configure the router through the convenient and user-friendly interface of a web browser. Most popular operating systems such as Linux, MAC, and Windows 98/NT/2000/XP/Me include a web browser as a standard application.

3.1 Before Configuration

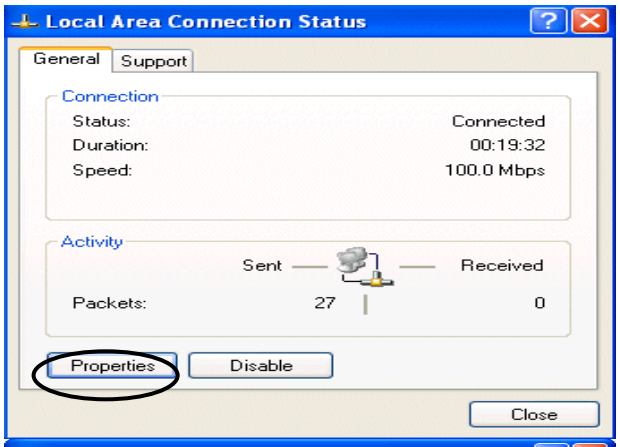
PCs must have a properly installed Ethernet interface and connect to the router directly or through an external repeater hub. In addition, PCs must have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. The default IP address of the router is **192.168.0.254** and the subnet mask is **255.255.255.0** (i.e. any attached PC must be in the same subnet, and have an IP address in the range of 192.168.0.1 to 192.168.0.253). The easiest way is to configure the PC to obtain an IP address automatically from the router using DHCP. If you encounter any problems accessing the router's web interface you are advised to **uninstall** any kind of software firewall on your PCs, as they can cause problems accessing the 192.168.0.254 IP address of the router.

Please follow the steps below for installation on your PC's network environment. First of all, check your PC's network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to your Windows-related or other operating system manuals.

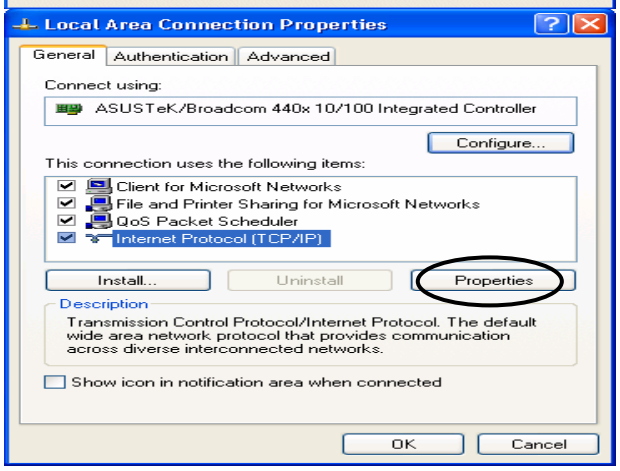
Configuring a PC in Windows XP

1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.

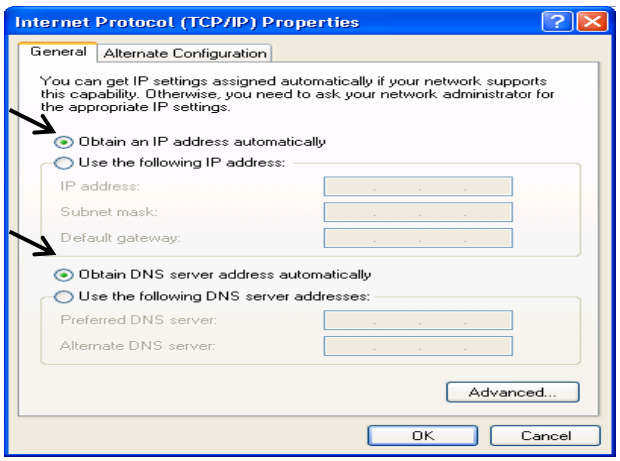
3. In the **Local Area Connection Status** window, click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

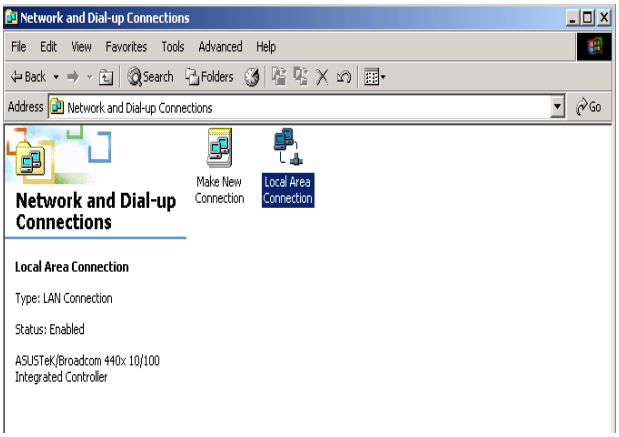

Local Area Connection Properties
General Authentication Advanced
Connect using:
ASUSTeK/Broadcom 440x 10/100 Integrated Controller
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol (TCP/IP)
Install... Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
OK Cancel

5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.


Internet Protocol (TCP/IP) Properties
General Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK Cancel

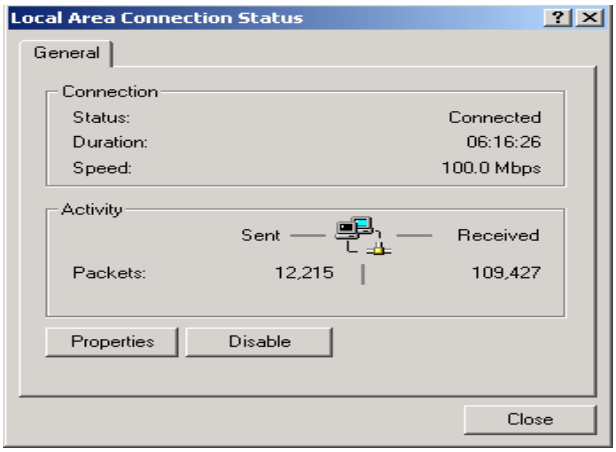
Configuring a PC in Windows 2000

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.

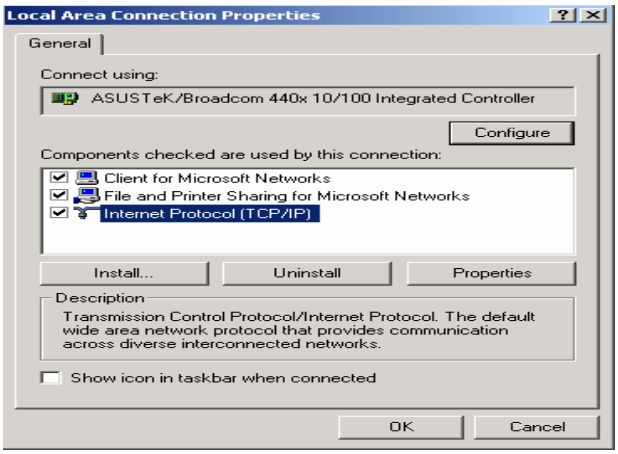


2. Double-click **Local Area Connection**.

3. In the **Local Area Connection Status** window click **Properties**.

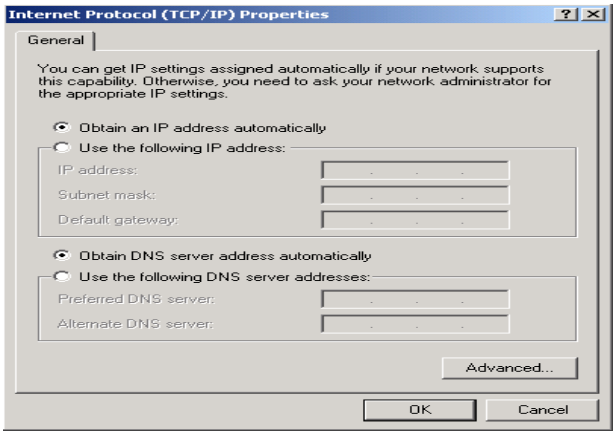


4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



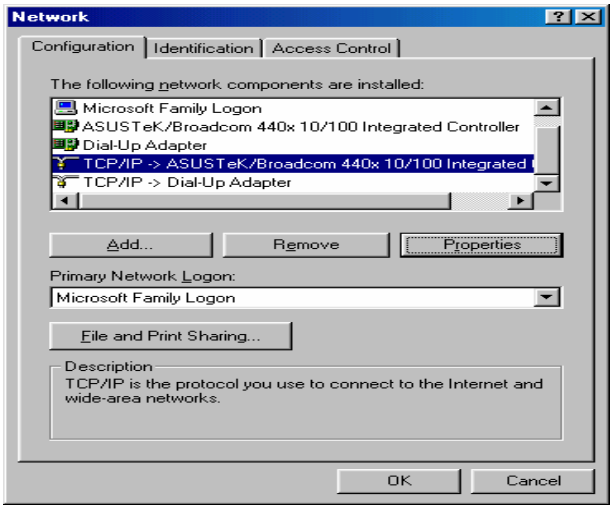
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.

6. Click **OK** to finish the configuration.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

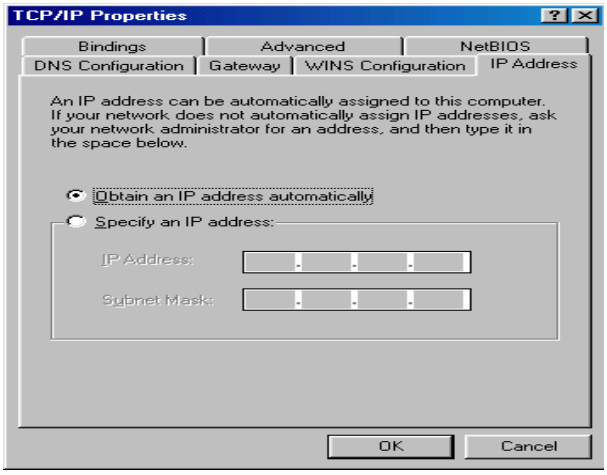
Configuring PC in Windows 98/Me

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.



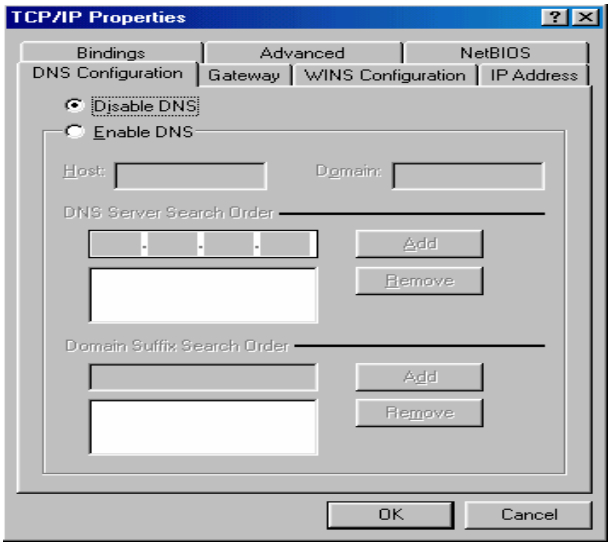
2. Select **TCP/IP ->NE2000 Compatible**, or the name of your Network Interface Card (NIC) in your PC.

3. Select the **Obtain an IP address automatically** radio button.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

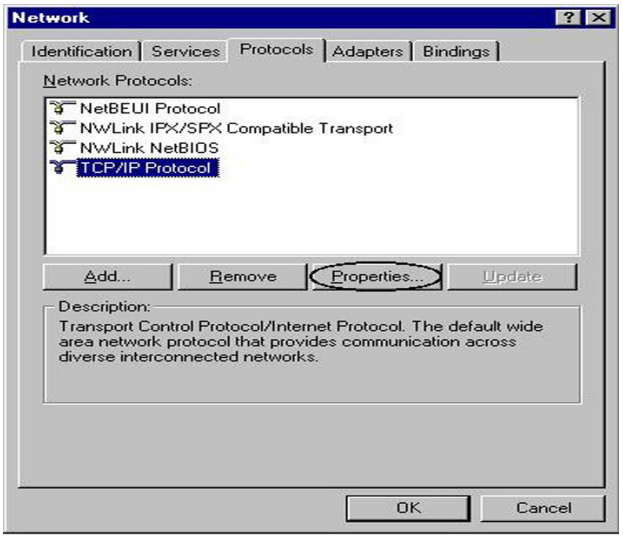
4. Then select the **DNS Configuration** tab.

5. Select the **Disable DNS** radio button and click **OK** to finish the configuration.



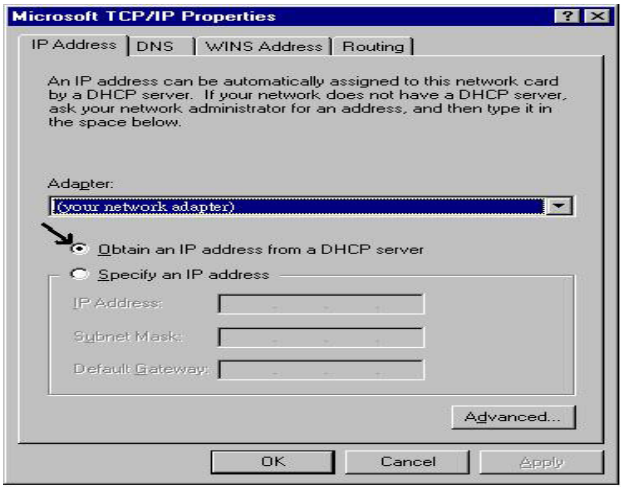
Configuring PC in Windows NT4.0

2. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.



3. Select **TCP/IP Protocol** and click **Properties**.

4. Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.


Microsoft TCP/IP Properties
IP Address
DNS
WINS Address
Routing
An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.
Adapter:
(Your network adapter)
Obtain an IP address from a DHCP server
Specify an IP address
IP Address:
Subnet Mask:
Default Gateway:
Advanced...
OK
Cancel
Apply

3.2 Factory Default Settings

Before configuring the router, you need to know the following default settings.

- **Web Interface:**
  - Username: admin
  - Password: admin
- **LAN Device IP Settings:**
  - IP Address: 192.168.0.254
  - Subnet Mask: 255.255.255.0
- **ISP setting in WAN site:**
  - RFC 1483 LLC Bridge
  - Auto support for VPI=0, 14 and VCI=24, 33, 50, 100 if auto-scan fails!
    During the 1st connection IP – traffic may take 2-4 minutes after boot.
    Device will auto-scan correct parameters for ISP line on this period.
  - NAT enabled
- **DHCP Server:**
  - DHCP server is enabled.
  - Start IP Address: 192.168.0.100
  - IP pool counts: 100

3.3 Username and Password

The default username and password are "**admin**" and "**admin**" respectively.

Attention

To reset the router or to restore it to factory default settings press the Reset button using the end of paper clip or other small pointed object.

1. To perform Failure recovery for a dead router:

Simply hold the Reset button when powering on the router and download an application if necessary.

2. To perform recovery in case of a misplaced Password:

Hold the Reset button until the LEDs all turn Off, turn On and then turn Off. The router performs configuration factory reset and the router reboots. You can then access the router from the web GUI.

3.4 LAN and WAN Port Addresses

The parameters of LAN and WAN ports are preset at the factory. The default values are shown below.

LAN Port		WAN Port
IP address	192.168.0.254	Bridge is automatic setting in WAN port.
Subnet Mask	255.255.255.0	
DHCP server function	Enabled	
IP addresses for distribution to PCs	100 IP addresses continuing from 192.168.0.100 through 192.168.0.199	

3.4 Information from your ISP

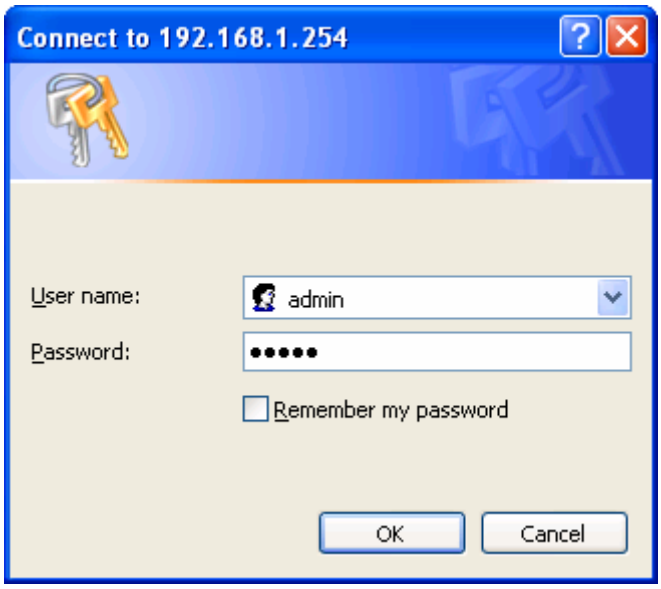
Before configuring this device, you have to check with your ISP (Internet Service Provider) what kind of service is provided such as PPPoE, PPPoA, RFC1483, or IPoA.

Gather the information as illustrated in the following table and keep it for reference.

PPPoE	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
PPPoA	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
RFC1483 Bridged	VPI/VCI, VC-based/LLC-based multiplexing to use Bridged Mode.
RFC1483 Routed	VPI/VCI, VC-based/LLC-based multiplexing, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).

3.5 Configuring with your Web Browser

Open your web browser, enter the IP address of your router, which by default is **192.168.0.254**, and click "**Go**", a user name and password window prompt appears. **The default username and password are "admin" and "admin".**



Congratulations! You have successfully logged on to your 802.11g ADSL2+ Router!

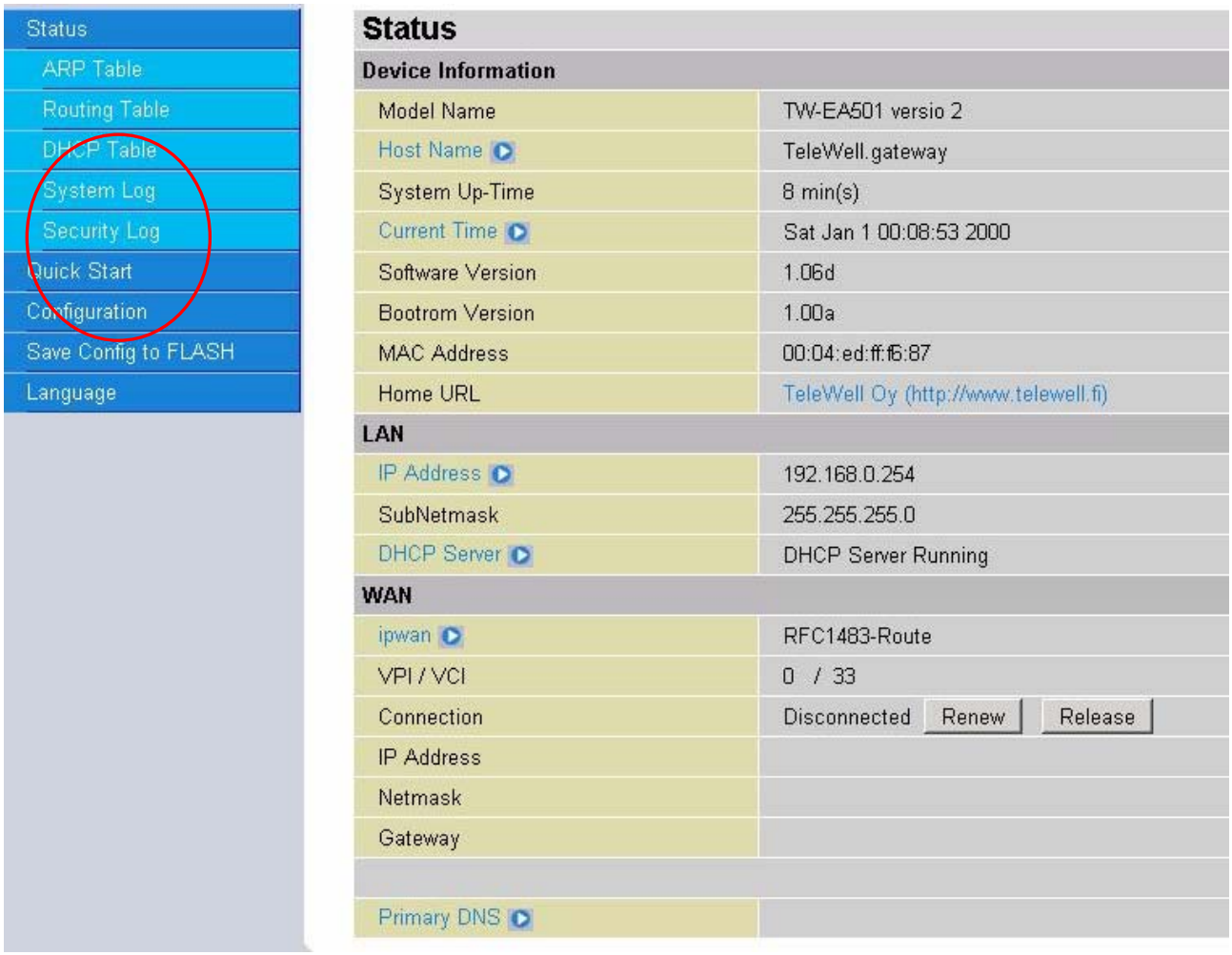
Chapter 4
Configuration

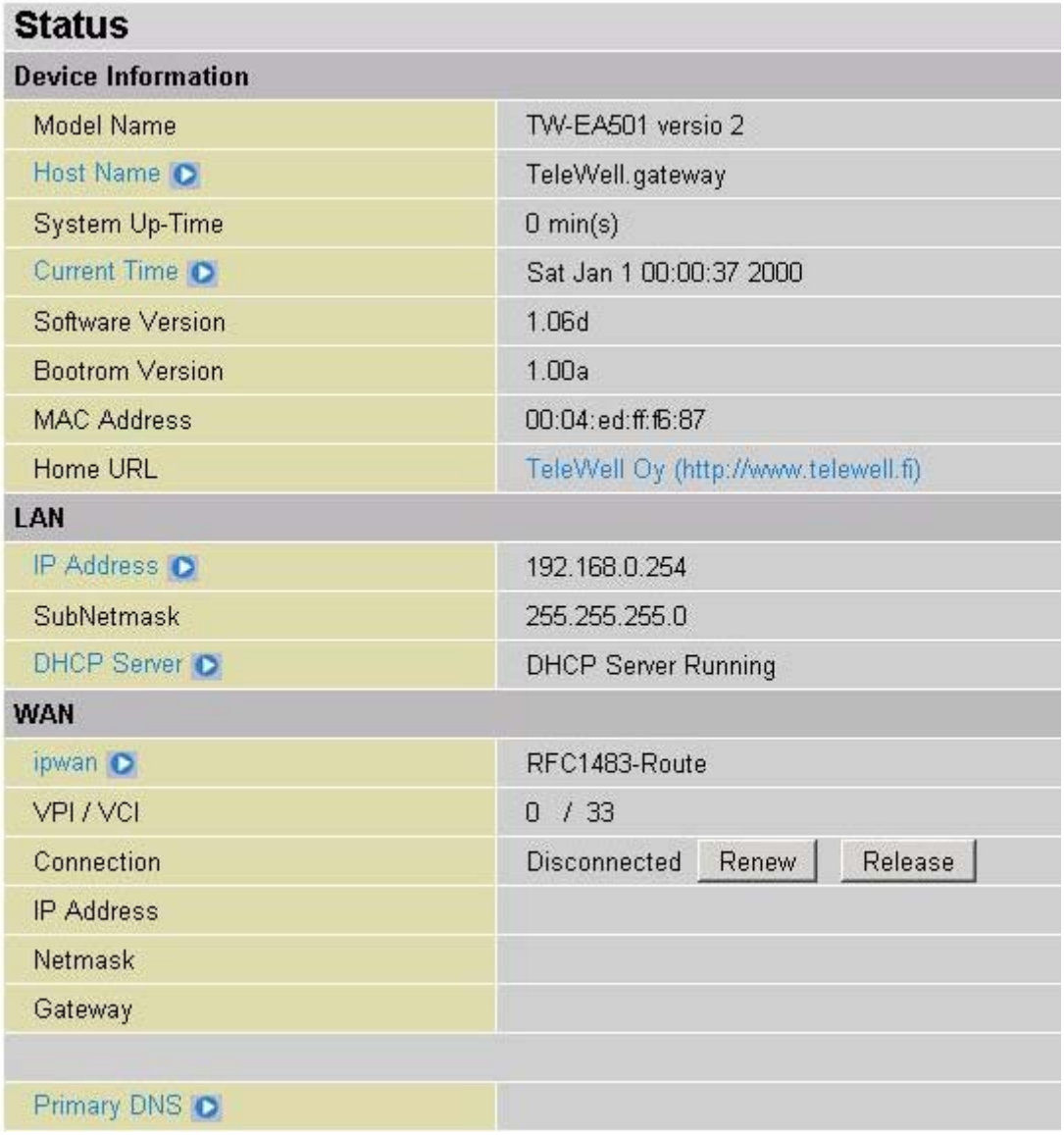
Once you have logged on to your ADSL Router via your web browser, you can begin to set it up according to your requirements. On the configuration homepage, the left navigation pane links you directly to the setup pages, which include:

- **Status** (ARP Table, Wireless Association, Routing Table, DHCP Table, System Log, Security Log)
- **Quick Start**
- **Configuration** (LAN, WAN, System, Firewall, Virtual Server and Advanced)
- **Save Config to FLASH**

The following sections provide an overview of the settings available for configuring your TW-EA 501 v2 router.

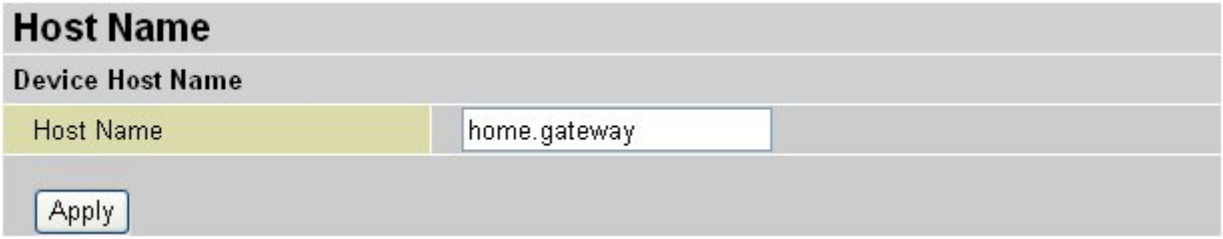
4.1 Status


Status
ARP Table
Routing Table
DHCP Table
System Log
Security Log
Quick Start
Configuration
Save Config to FLASH
Language
Status
Device Information
Model Name
TW-EA501 versio 2
Host Name
TeleWell.gateway
System Up-Time
8 min(s)
Current Time
Sat Jan 1 00:08:53 2000
Software Version
1.06d
Bootrom Version
1.00a
MAC Address
00:04:ed:ff:f6:87
Home URL
TeleWell Oy (http://www.telewell.fi)
LAN
IP Address
192.168.0.254
SubNetmask
255.255.255.0
DHCP Server
DHCP Server Running
WAN
ipwan
RFC1483-Route
VPI / VCI
0 / 33
Connection
Disconnected
Renew
Release
IP Address
Netmask
Gateway
Primary DNS



Device Information

- **Host Name:** Provide a name for the router for identification purposes. Host Name lets you change the router name.



- **System Up-Time:** Records system up-time.
- **Current time:** Set the current time. See the Time Zone section for more information.
- **Hardware Version:** Chipset version

- **Software Version:** Firmware version
- **LAN MAC Address:** The LAN MAC address
- **WAN MAC Address:** The WAN MAC address
- **Home URL:** Connects to the Home Website.

LAN

- **IP Address:** LAN port IP address.
- **Sub Net Mask:** LAN port IP subnet mask.
- **DHCP Server:** LAN port DHCP role - Server, Relay or None.

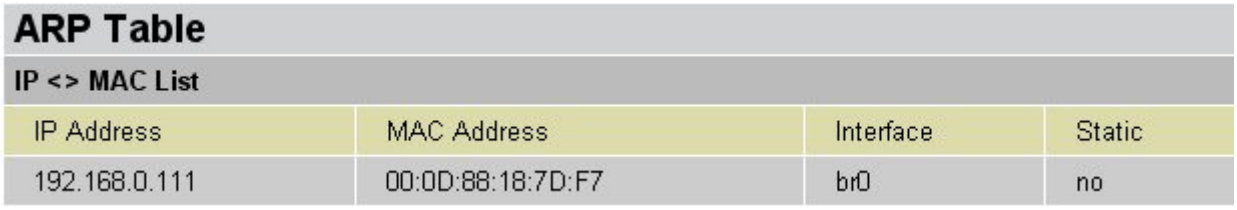
WAN

- **IP WAN:** Name of the WAN connection.
- **VPI/VCI:** Virtual Path Identifier and Virtual Channel Identifier
- **Connection:** Selects “Disconnected” or “Connected”
- **IP Address:** WAN port IP address.
- **Net mask:** WAN port IP subnet mask.
- **Gateway:** The IP address of the default gateway.

- **Port Status：** User can look up for your connected condition

4.1.1 ARP Table

The router's ARP (Address Resolution Protocol) Table shows the mapping of Internet (IP) addresses to Ethernet (MAC) addresses. This is a quick way to determine the MAC address of the network interface of your PCs to use with the router's **Firewall – MAC Address Filter** function. See the Firewall section of this manual for more information.



ARP Table

IP <> MAC List

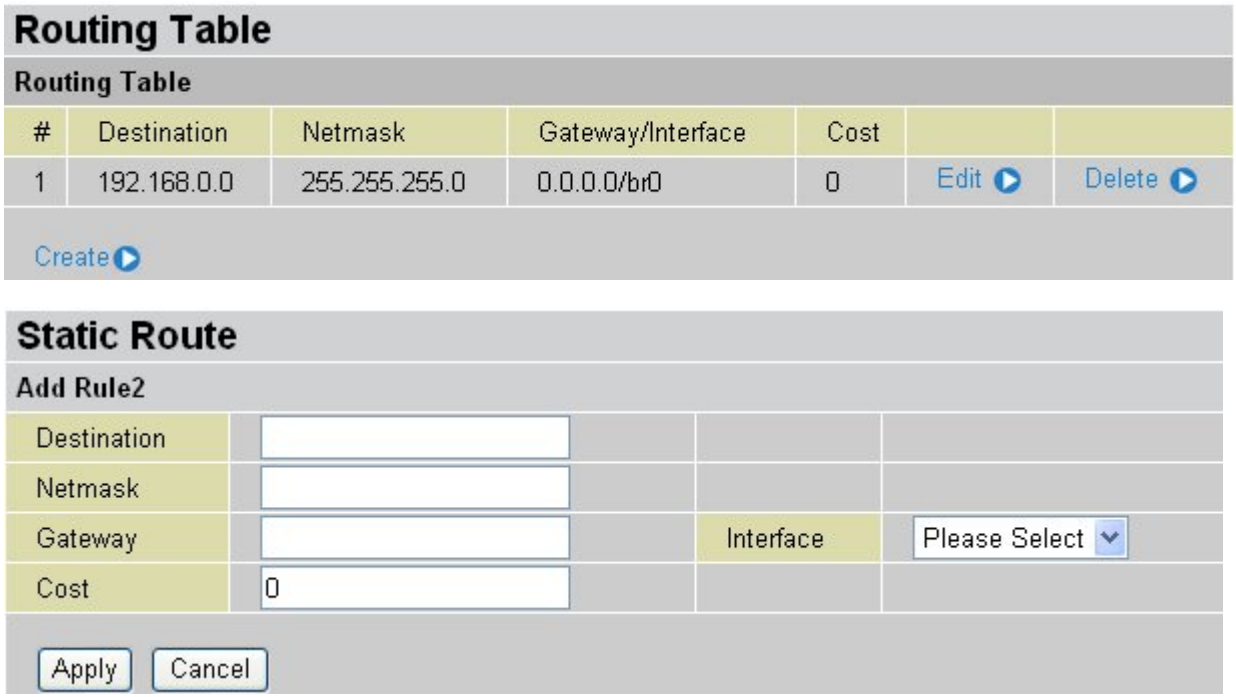
IP Address	MAC Address	Interface	Static
192.168.0.111	00:0D:88:18:7D:F7	br0	no

- **IP Address:** A list of IP addresses of devices on your LAN (Local Area Network).
- **MAC Address:** MAC (Media Access Control) address for each device on your LAN.
- **Interface:** The interface name (on the router) that this IP Address connects to.
- **Static:** Static status of the ARP table entry:

  "**no**" for dynamically-generated ARP table entries

  "**yes**" for static ARP table entries added by the user

4.1.3 Routing Table



Routing Table:

- **#:** Item number
- **Destination:** IP address of the destination network.
- **Netmask:** The destination netmask address.
- **Gateway/Interface:** IP address of the gateway or existing interface that this route uses.
- **Cost:** The cost of transmission for routing purposes. The number need not be precise, but it must be between 0 and 65535.
- **Interface:** Select the interface through which packets are forwarded.

4.1.4 DHCP Table

DHCP Table

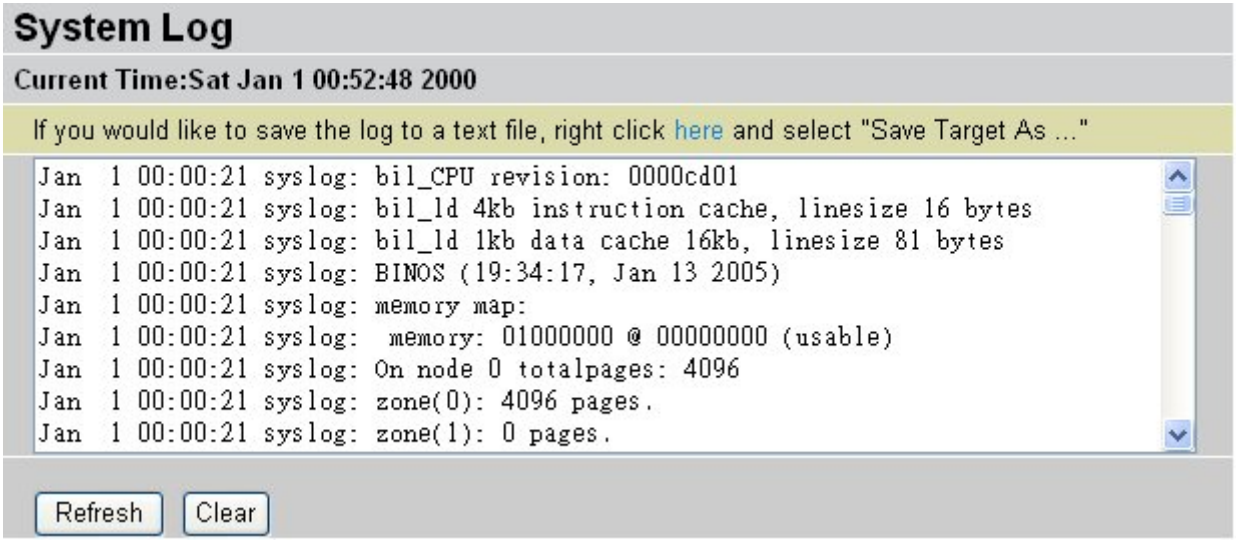
Leased Table

IP Address	MAC Address	Client Host Name	Register Time
192.168.1.100	00:0d:88:18:7d:f7		2000/01/01 00:05:22 - 2000/01/01 02:05:22

- **Leased:** DHCP assigned IP addresses information.
- **IP Address:** IP addresses of devices on your LAN (Local Area Network).
- **MAC Address:** The MAC Address that you want to assign the fixed IP address
- **Client Host Name:** Expired IP addresses information
- **Register Time:** Register time information

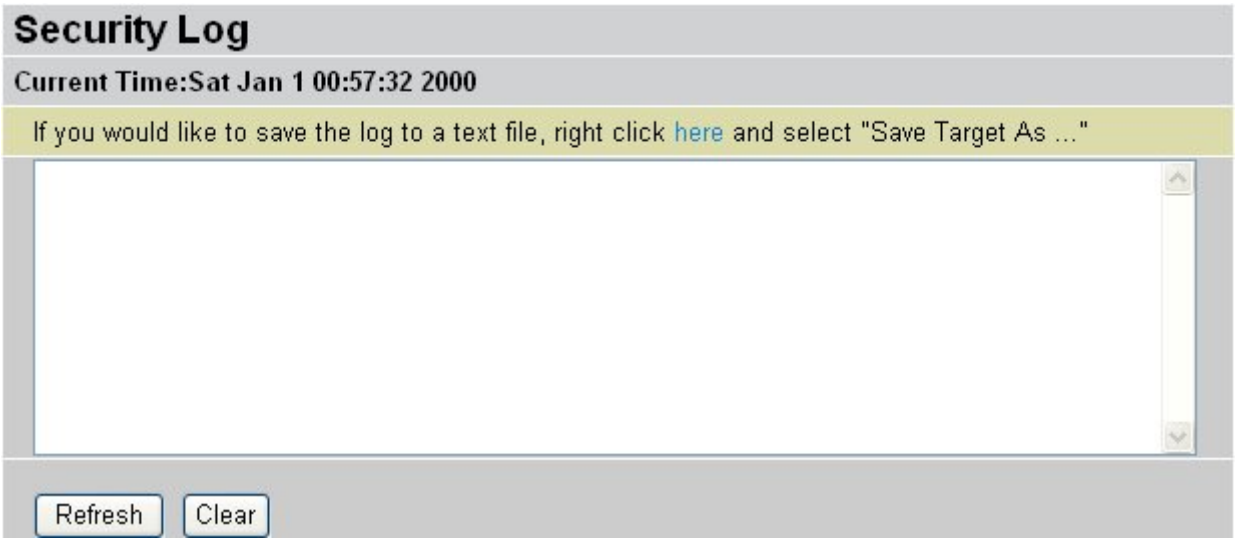
4.1.5 System Log

Display system logs accumulated up to the present time. You can trace historical information with this function.

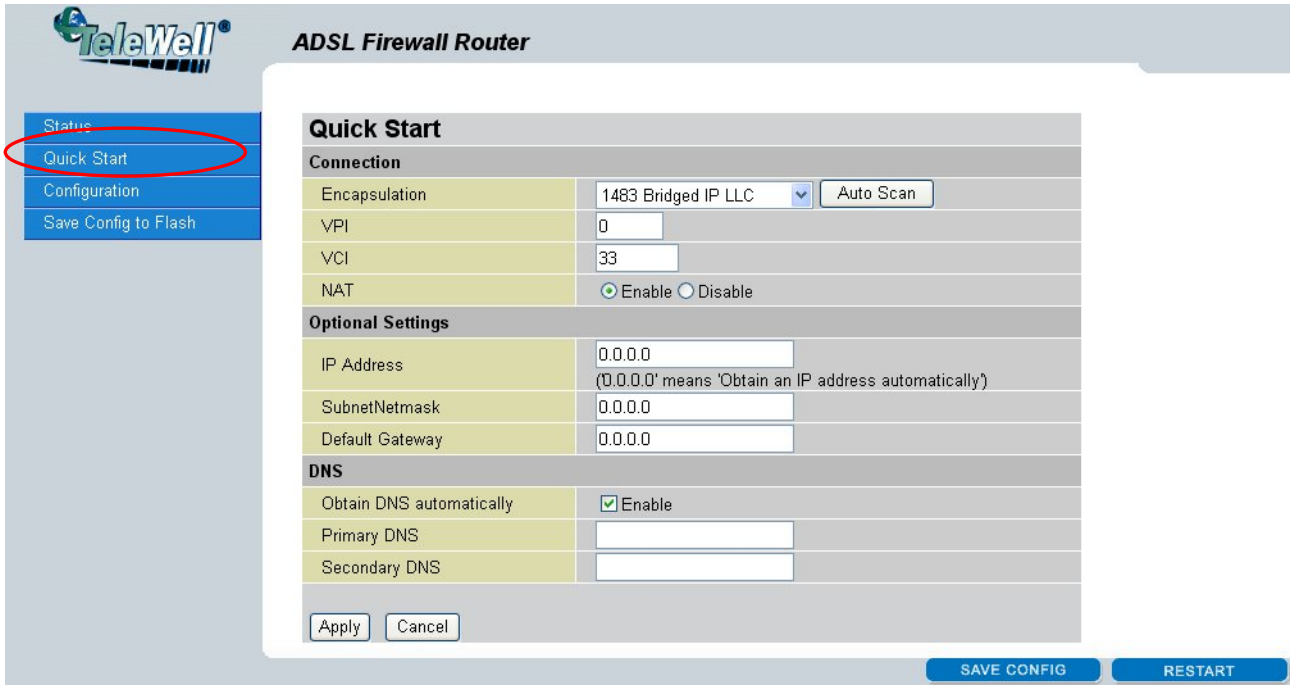

System Log
Current Time:Sat Jan 1 00:52:48 2000
If you would like to save the log to a text file, right click here and select "Save Target As ..."
Jan 1 00:00:21 syslog: bil_CPU revision: 0000cd01
Jan 1 00:00:21 syslog: bil_ld 4kb instruction cache, linesize 16 bytes
Jan 1 00:00:21 syslog: bil_ld 1kb data cache 16kb, linesize 81 bytes
Jan 1 00:00:21 syslog: BINOS (19:34:17, Jan 13 2005)
Jan 1 00:00:21 syslog: memory map:
Jan 1 00:00:21 syslog: memory: 01000000 @ 00000000 (usable)
Jan 1 00:00:21 syslog: On node 0 totalpages: 4096
Jan 1 00:00:21 syslog: zone(0): 4096 pages.
Jan 1 00:00:21 syslog: zone(1): 0 pages.
Refresh
Clear

4.1.6 Security Log

This screen displays security log information. If a hacker attacks your server, he is isolated by the firewall function and the router records related information. This helps you know where the hacker comes from.


Security Log
Current Time:Sat Jan 1 00:57:32 2000
If you would like to save the log to a text file, right click here and select "Save Target As ..."
Refresh
Clear

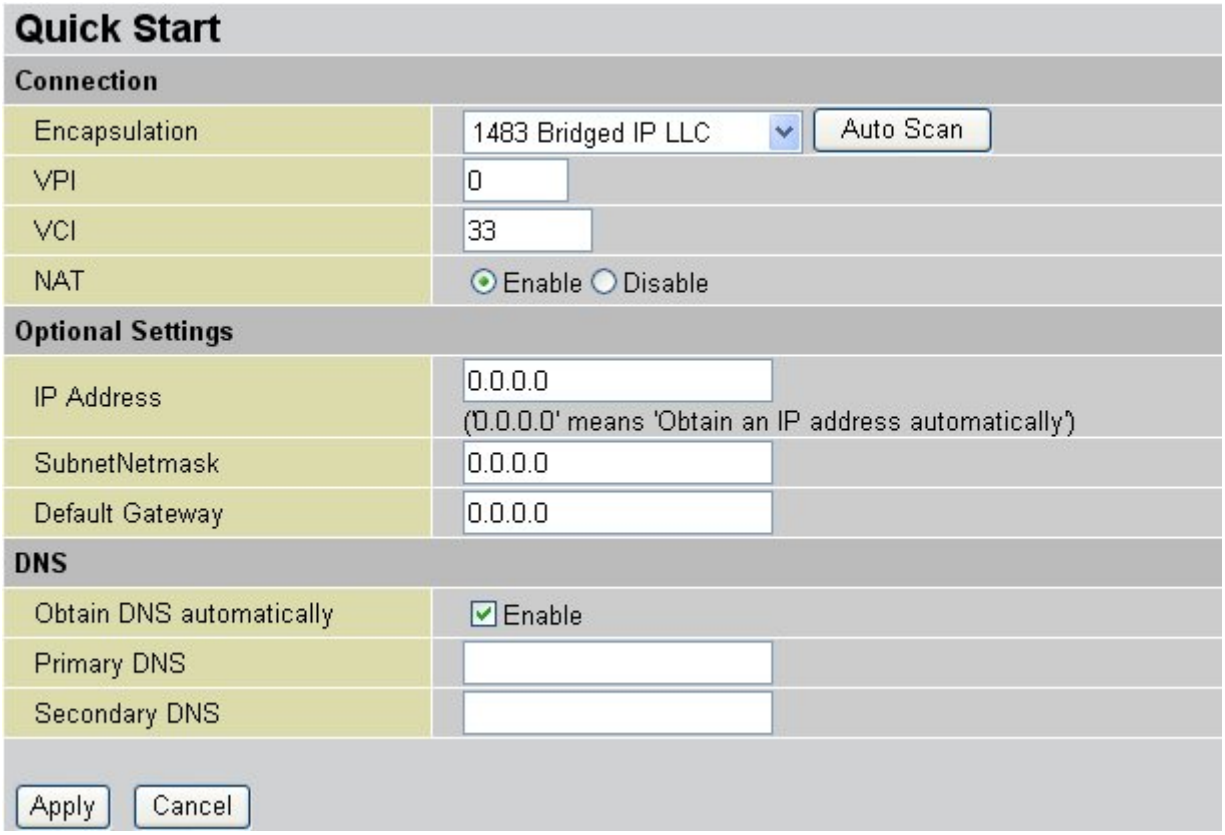
4.2 Quick Start



For detailed instructions on configuring WAN settings, see the **WAN** section of this manual.

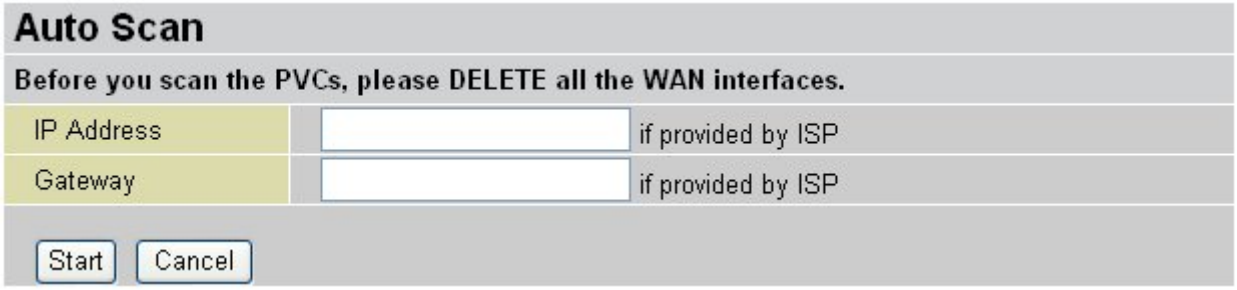
The information you need for the Quick Start wizard to get you online are your login (often in the form of *username@ispname*), your password, and the encapsulation type.

Your ISP can supply all the details you need. Alternatively, if you have deleted the current WAN Connection in the **WAN – ISP** section of the interface, you can use the router's PVC Scan feature to determine the Encapsulation types offered by your ISP.



Connection

- **Encapsulation:** Select the encapsulation type your ISP uses or choose “Auto Scan”.



Click **Start** to begin scanning for encapsulation types offered by your ISP. If the scan is successful, you are presented with a list of supported options.

- **VCI:** Enter the VCI assigned to you. This field may already be configured.
- **VPI:** Enter the VPI assigned to you. This field may already be configured.
- **NAT:** Select “Enabled” or “Disabled”.

Optional Setting

- **IP Address:** Type your ISP assigned IP address in the IP Address text box.
- **Subnet Mask:** Enter a subnet mask in dotted decimal notation.
- **Default Gateway:** You must specify a gateway IP address (supplied by your ISP)

DNS

- **Obtain DNS automatically:** Select this check box to use DNS.
- **Primary DNS:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.
- **Secondary DNS:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

4.3 Configuration

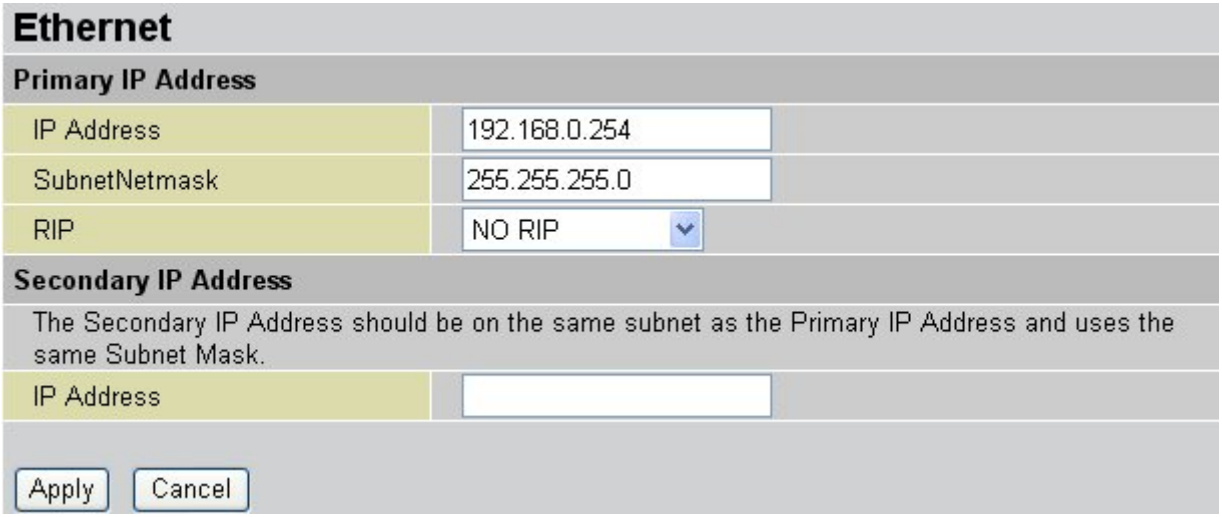
Click this item to access the following sub-items that configure the ADSL router: **LAN, WAN, System, Firewall, Virtual Server** and **Advanced.**
These functions are described in the following sections.

4.3.1 LAN (Local Area Network)

A Local Area Network (LAN) is a shared communication system to which many computers are attached and is limited to the immediate area, usually the same building or floor of a building.

There are four items within the LAN section: **Ethernet** and **DHCP Server**.

4.3.1.1 Ethernet



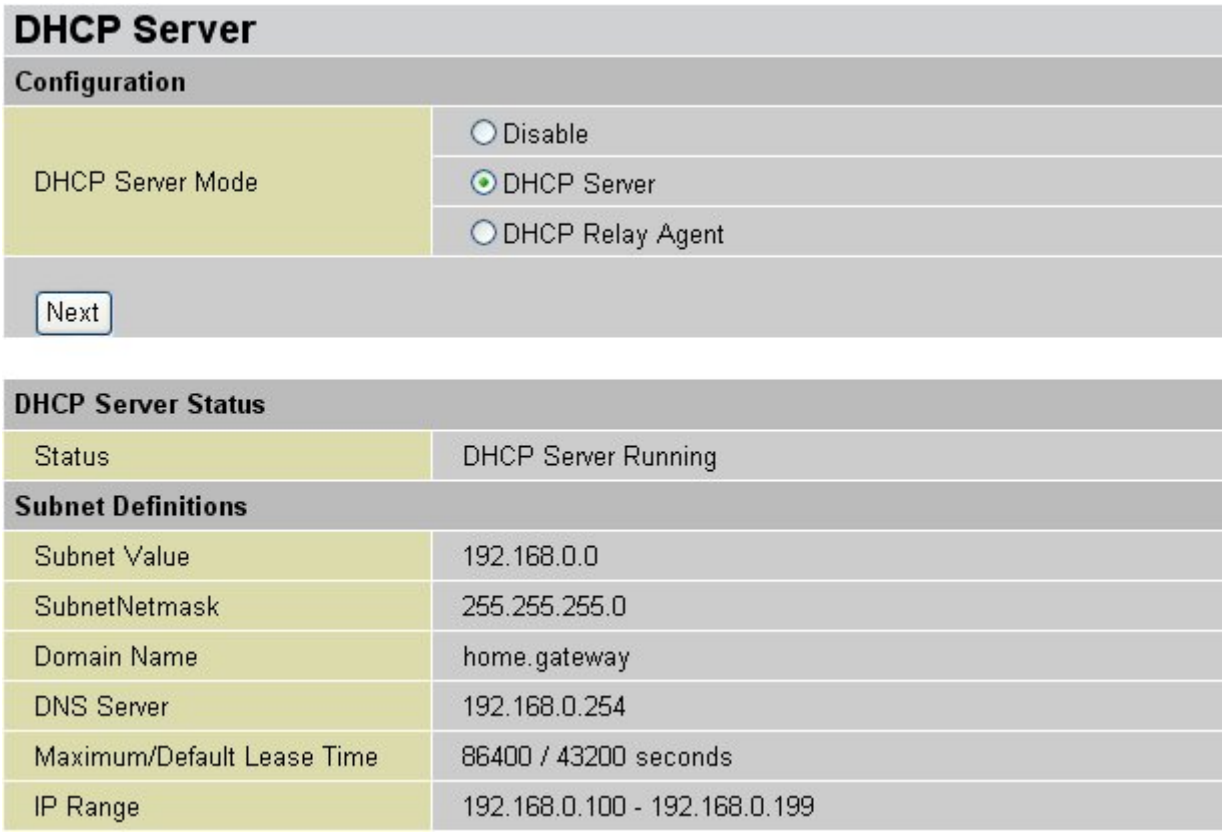
The router supports two Ethernet IP addresses in the LAN, and two different LAN subnets through which you can access the Internet at the same time. Users usually only have one subnet in their LAN, so there is no need to configure a Secondary IP address. The default IP address for the router is 192.168.0.254.

RIP: RIP v1, RIP v2, RIP v1+v2 and RIP v2 Multicast.

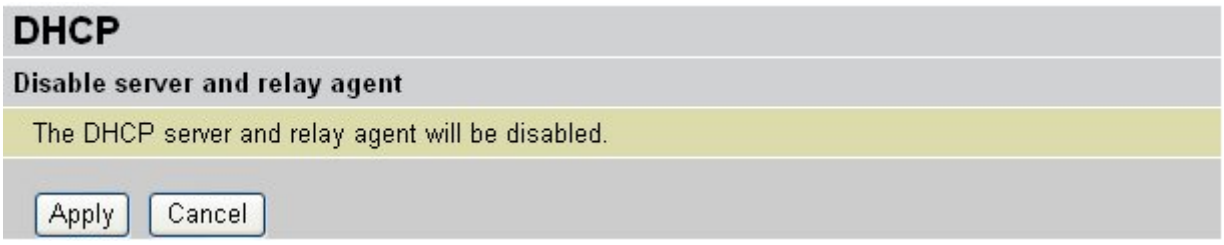
The Subnet mask of the Secondary IP Address depends on the setting of the Primary IP Address.

4.3.1.4 DHCP Server

You can disable or enable the DHCP (Dynamic Host Configuration Protocol) server or enable the router's DHCP relay functions. The DHCP protocol allows your router to dynamically assign IP addresses to PCs on your network if they are configured to obtain IP addresses automatically.

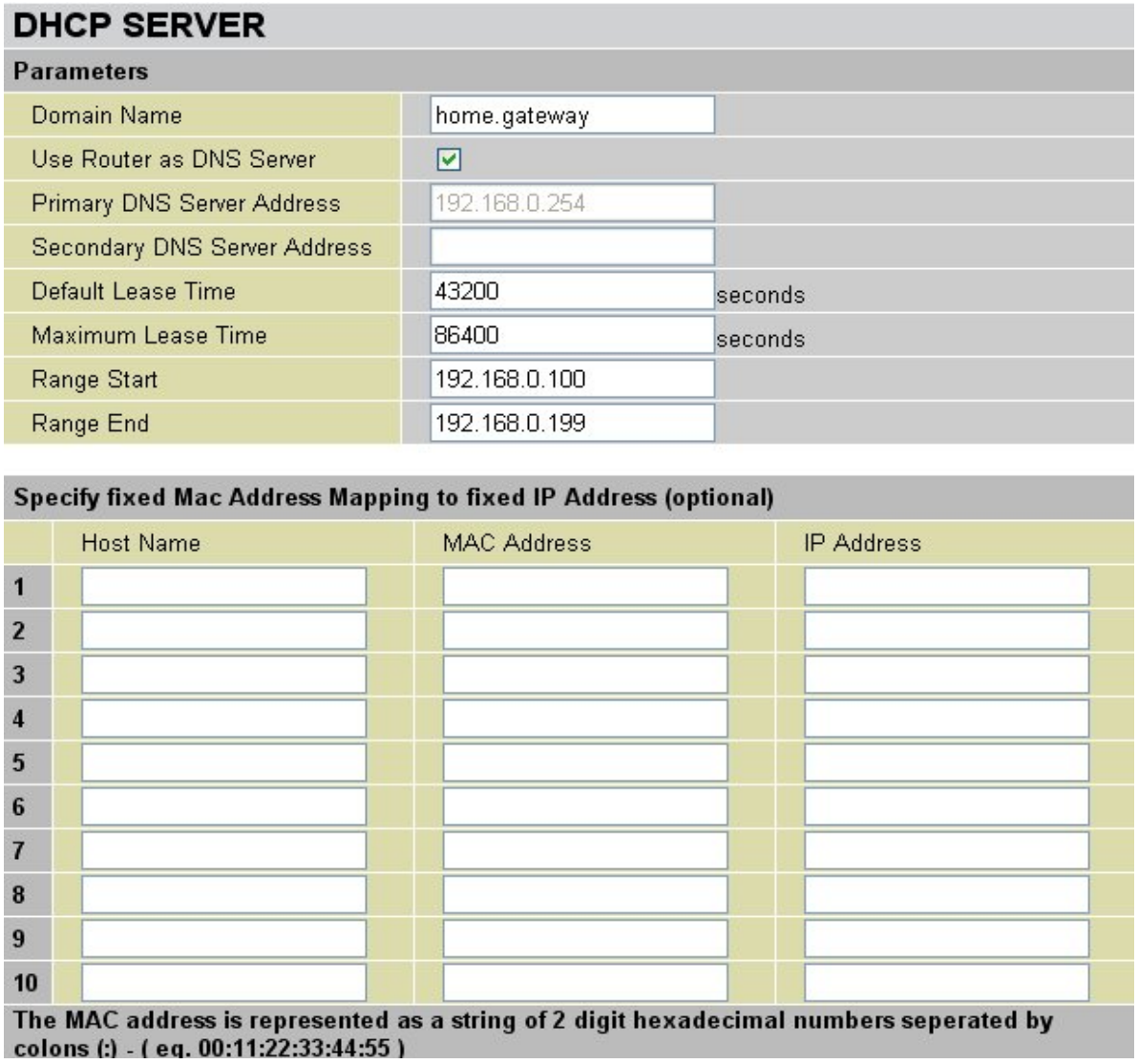


To disable the router's DHCP Server, check **Disabled** and click **Next** then click **Apply.** When the DHCP Server is disabled you need to manually assign a fixed IP address to each PC on your network, and set the default gateway for each PC to the IP address of the router (the default is 192.168.0.254).



To configure the router's DHCP Server, check **DHCP Server** and click **Next**. You can then configure parameters of the DHCP Server including the IP pool (starting IP address and ending IP address to be allocated to PCs on your network), lease time for each assigned IP address (the period of time the IP address assigned will be valid), DNS IP address and the

gateway IP address. These details are sent to the DHCP client (i.e. your PC) when it requests an IP address from the DHCP server. Click **Apply** to enable this function. If you check "**Use Router as a DNS Server**", the ADSL Router performs the domain name lookup, finds the IP address from the outside network automatically and forwards it back to the requesting PC in the LAN (your Local Area Network).



If you check **DHCP Relay Agent** and click **Next** then you must enter the IP address of the DHCP server which assigns an IP address back to the DHCP client in the LAN. Use this function only if advised to do so by your network administrator or ISP. Click **Apply** to enable this function.

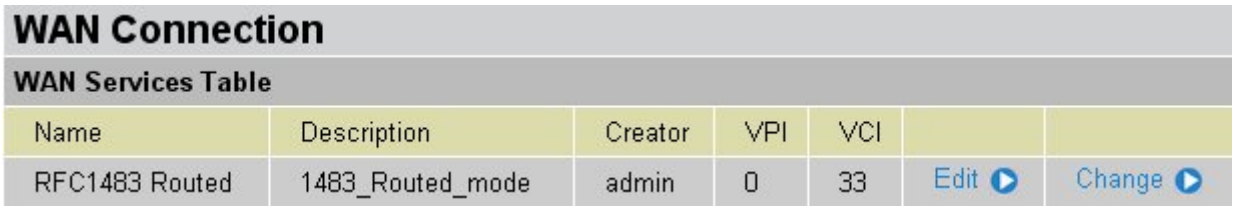
4.3.2 WAN (Wide Area Network)

A WAN (Wide Area Network) is an outside connection to another network or the Internet. There are three items within the **WAN** section: **ISP**, **DNS** and **ADSL.**

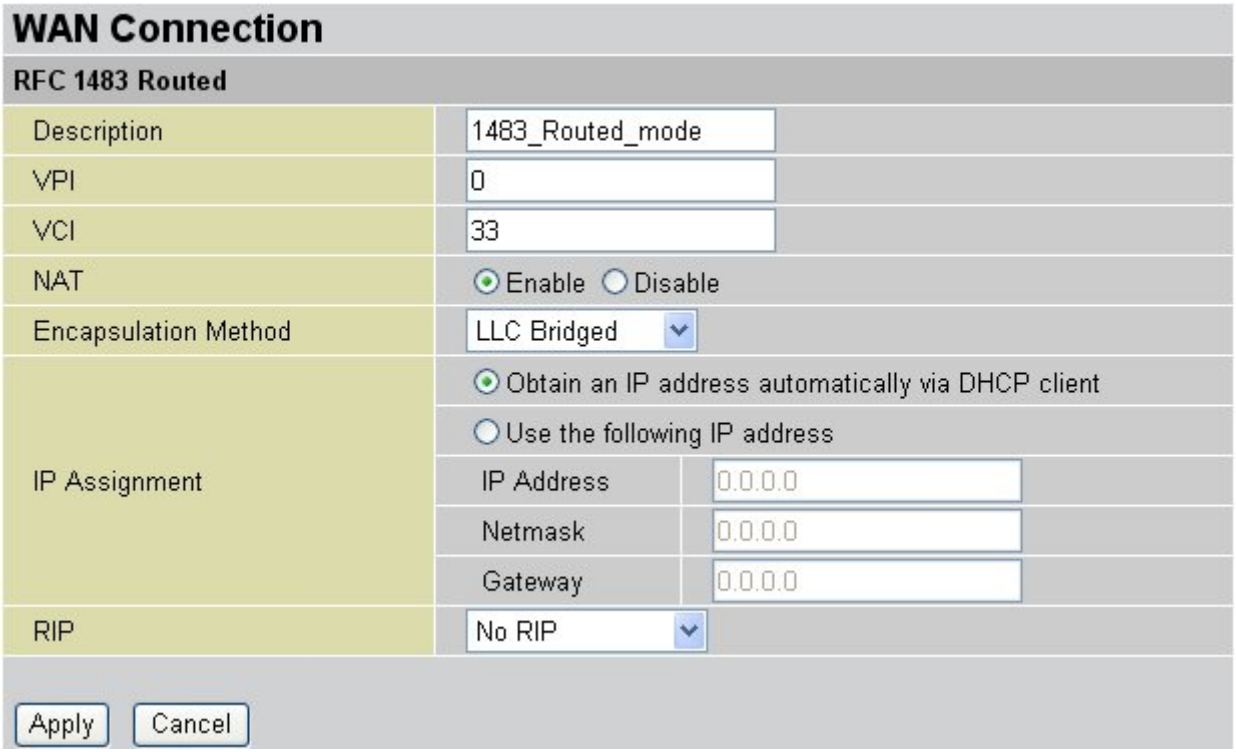
4.3.2.1 ISP

The factory default is 1483_Routed_mode. If your ISP uses this access protocol, click **Edit** to input other parameters as below. If your ISP does not use 1483_Routed_mode, you can change the default WAN connection entry by clicking **Change**.

A simpler alternative is to select **Quick Start** from the main menu on the left. See the Quick Start section of the manual for more information.



RFC 1483 Routed Connections



Description: Your description of this connection.

VPI and VCI: Enter the information provided by your ISP.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account, sharing the single IP address. If users on your LAN have public IP addresses and can access the Internet directly, the NAT function can be disabled.

Encapsulation method: Select the encapsulation format, the default is LLC Bridged. Select the one provided by your ISP.

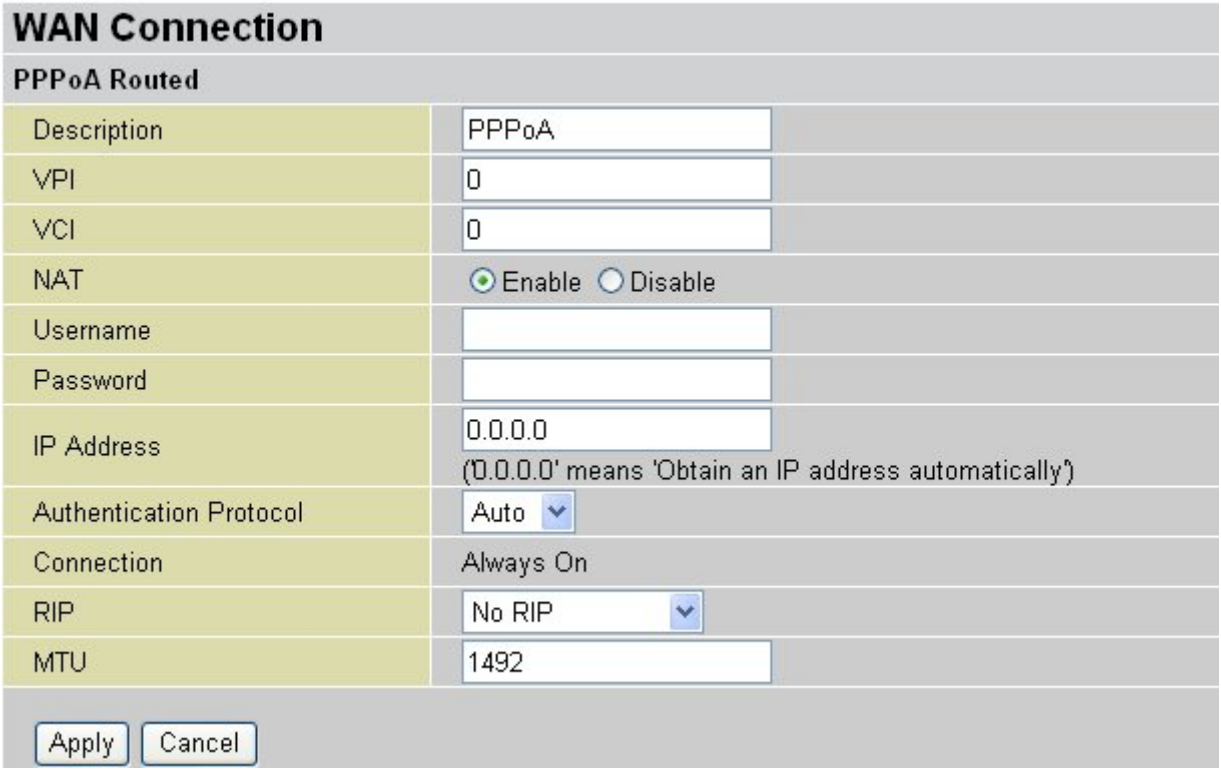
DHCP client: Enable or disable the DHCP client, specify if the router can get an IP address from the Internet Service Provider (ISP) automatically or not.

Obtain an IP address automatically via DHCP client to enable the DHCP client function or click Specify an IP address to disable the DHCP client function, and specify the IP address manually. The setting of this item is specified by your ISP.

RIP: RIP v1, RIP v2, RIP v1+v2 and RIP v2 Multicast.

PPPoA Routed Connections

PPPoA stands for Point to Point Protocol over ATM Adaptation Layer 5 (AAL5). It provides access control and billing functionality in a manner similar to dial-up services using PPP.



Description: User-definable name for the connection.

VPI/VCI: Enter the information provided by your ISP.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account, sharing a single IP address. If users on your LAN have public IP addresses and can access the Internet directly, the NAT function can be disabled.

Username: Enter the username provided by your ISP. You can input up to **128** alphanumeric characters (case sensitive). This is in the format of “username@ispname” instead of simply “username”.

Password: Enter the password provided by your ISP. You can input up to **128** alphanumeric characters (case sensitive).

IP Address: Your WAN IP address. Leave this at 0.0.0.0 to automatically obtain an IP address from your ISP.

Authentication Protocol Type: Default is **Chap (Auto**). Your ISP advises you whether to use **Chap** or **Pap.**

Connection: If you want the router to establish a PPPoA session when starting up and to automatically re-establish the PPPoA session when disconnected by the ISP.

RIP: RIP v1, RIP v2, RIP v1+v2 and RIP v2 Multicast.

MTU: Maximum Transmission Unit. The size of the largest datagram (excluding media-specific headers) that the IP attempts to send through the interface.

Apply

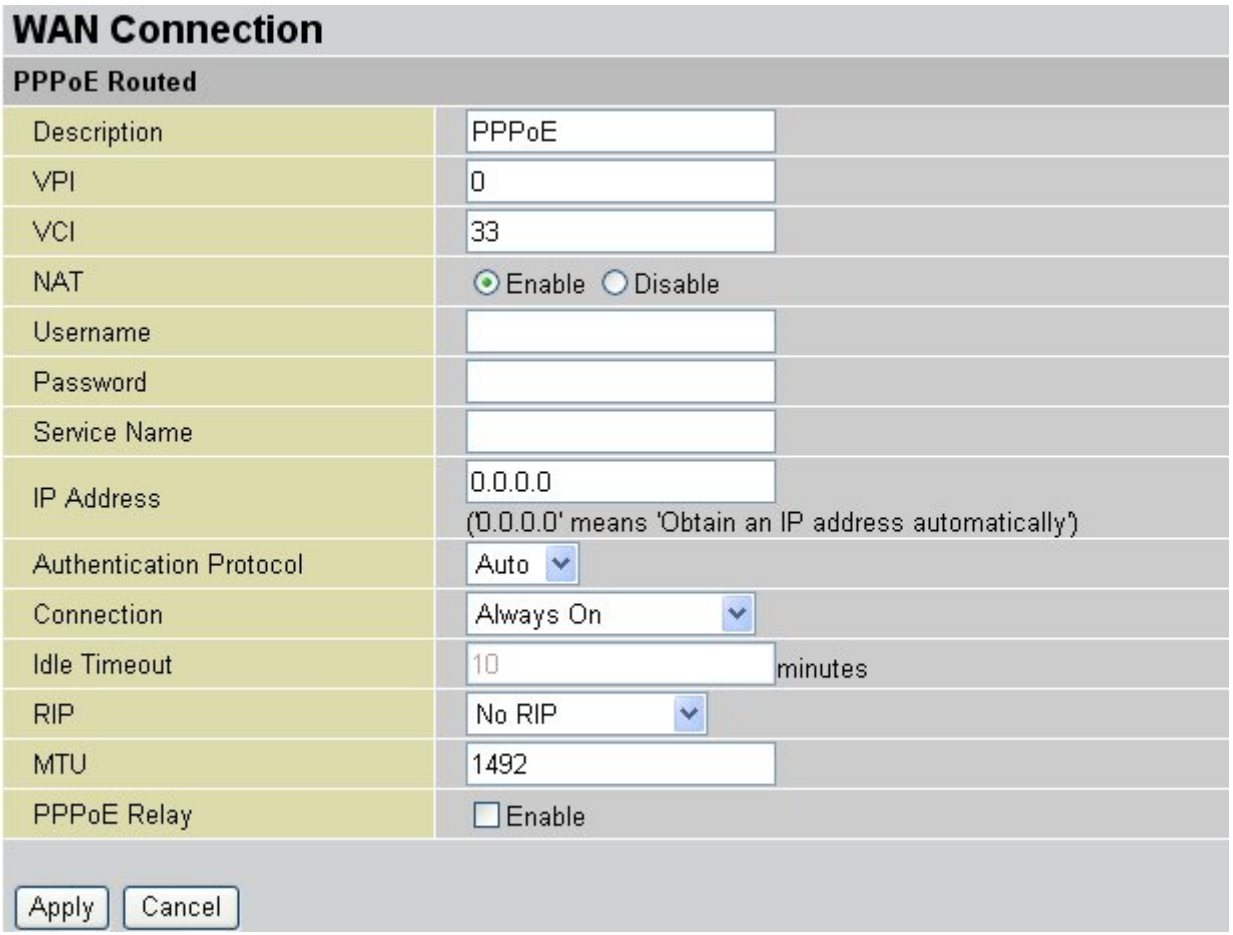
WAN Connection

WAN Services Table

Name	Description	Creator	VPI	VCI		
PPPoA Routed	PPPoA	admin	0	32	Edit	Change

PPPoE Routed Connections

PPPoE (PPP over Ethernet) provides access control in a manner similar to dial-up services using PPP.



- **Description:** A user-definable name for this connection.
- **VPI/VCI:** Enter the information provided by your ISP.
- **NAT:** The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single ISP account, sharing a single IP address. If users on your LAN have public IP addresses and can access the Internet directly, the NAT function can be disabled.
- **Username:** Enter the username provided by your ISP. You can input up to **128** alphanumeric characters (case sensitive). This is in the format of "username@ispname" instead of simply "username".
- **Password:** Enter the password provided by your ISP. You can input up to **128** alphanumeric characters (case sensitive).
- **Service Name:** This item is for identification purposes. If it is required, your ISP provides you the information. Maximum input is **20** alphanumeric characters.
- **IP Address:** Your WAN IP address. Leave this at 0.0.0.0 to automatically obtain an IP address from your ISP.
- **Authentication Protocol:** Default is **Chap.** Your ISP advises on using **Chap** or **Pap.**
- **Connection:**

⊙ **Always on:** If you want the router to establish a PPPoE session when starting up and to automatically re-establish the PPPoE session when disconnected by the ISP.

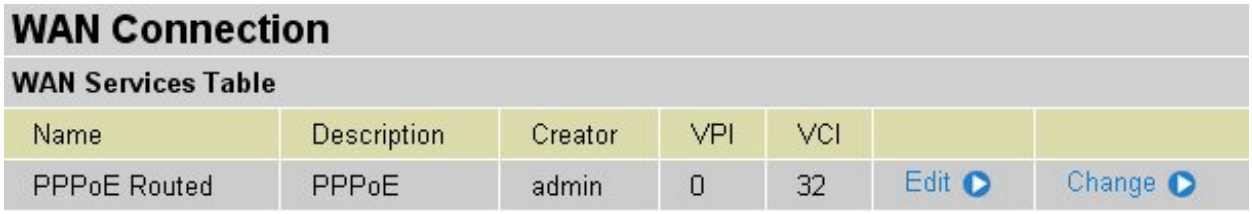
⊙ **Connect to Demand:** If you want to establish a PPPoE session only when there is a packet requesting access to the Internet (i.e. when a program on your computer attempts to access the Internet).

Idle Timeout: Auto-disconnect the broadband firewall gateway when there is no activity on the line for a predetermined period of time.

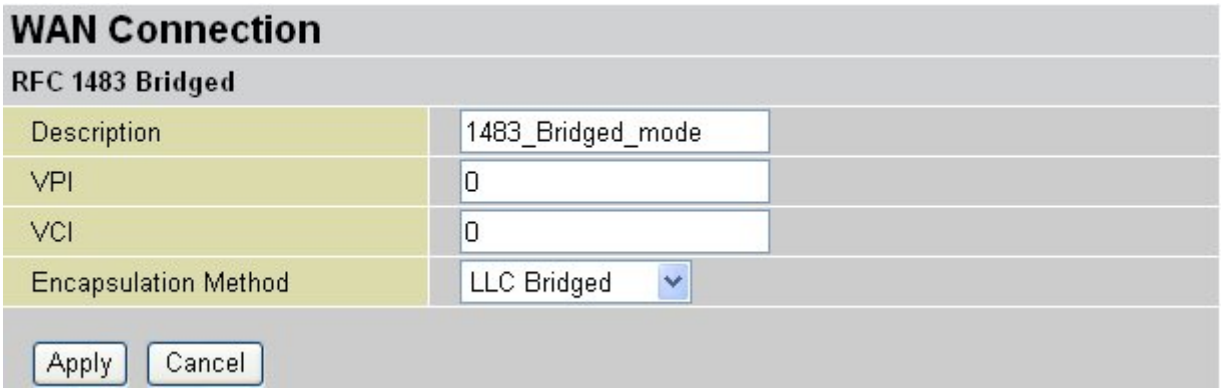
RIP: RIP v1, RIP v2, RIP v1+v2 and RIP v2 Multicast.

MTU: Maximum Transmission Unit. The size of the largest datagram (excluding media-specific headers) an IP attempts to send through the interface.

Apply



RFC 1483 Bridged Connections

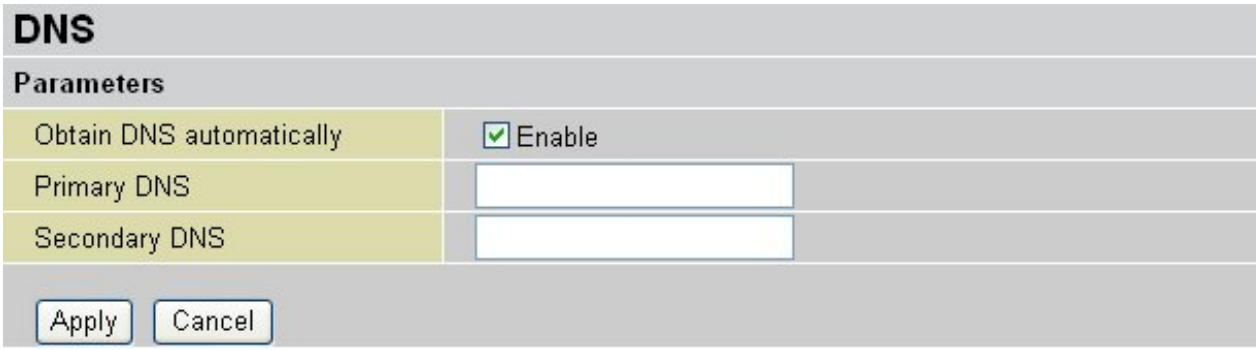


Description: A user-definable name for this connection.

VPI/VCI: Enter the information provided by your ISP.

Encapsulation method: Select the encapsulation format, this is provided by your ISP.

4.3.2.2 DNS

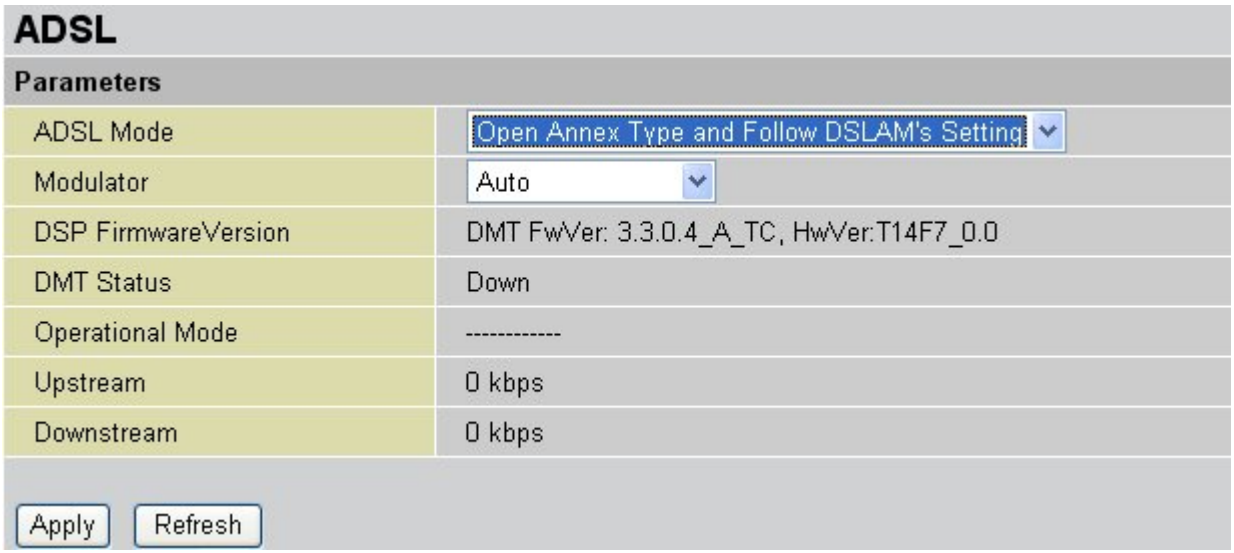


A Domain Name System (DNS) contains a mapping table for domain name and IP addresses. On the Internet, every host has a unique and user-friendly name (domain name) such as www.yahoo.com and an IP address. An IP address is a 32-bit number in the form of *xxx.xxx.xxx.xxx*, for example 192.168.0.254. You can think of an IP address as a telephone number for devices on the Internet, and the DNS allows you to find the telephone number for any particular domain name. Since an IP Address is hard to remember, the DNS converts the friendly name into its equivalent IP Address.

You can obtain a Domain Name System (DNS) IP address automatically if your ISP has provided it when you logon. Usually when you choose PPPoE or PPPoA as your WAN - ISP protocol, the ISP provides the DNS IP address automatically. You may leave the configuration field blank. Alternatively, your ISP may provide you with an IP address of their DNS. If this is the case, you must enter the DNS IP address.

If you choose one of the other protocols, RFC1483 Routed or Bridged, check with your ISP, as it may provide you with an IP address for their DNS server. You must enter the DNS IP address if you set the DNS Server address on your PC to the LAN IP address of this router.

4.3.2.3 ADSL

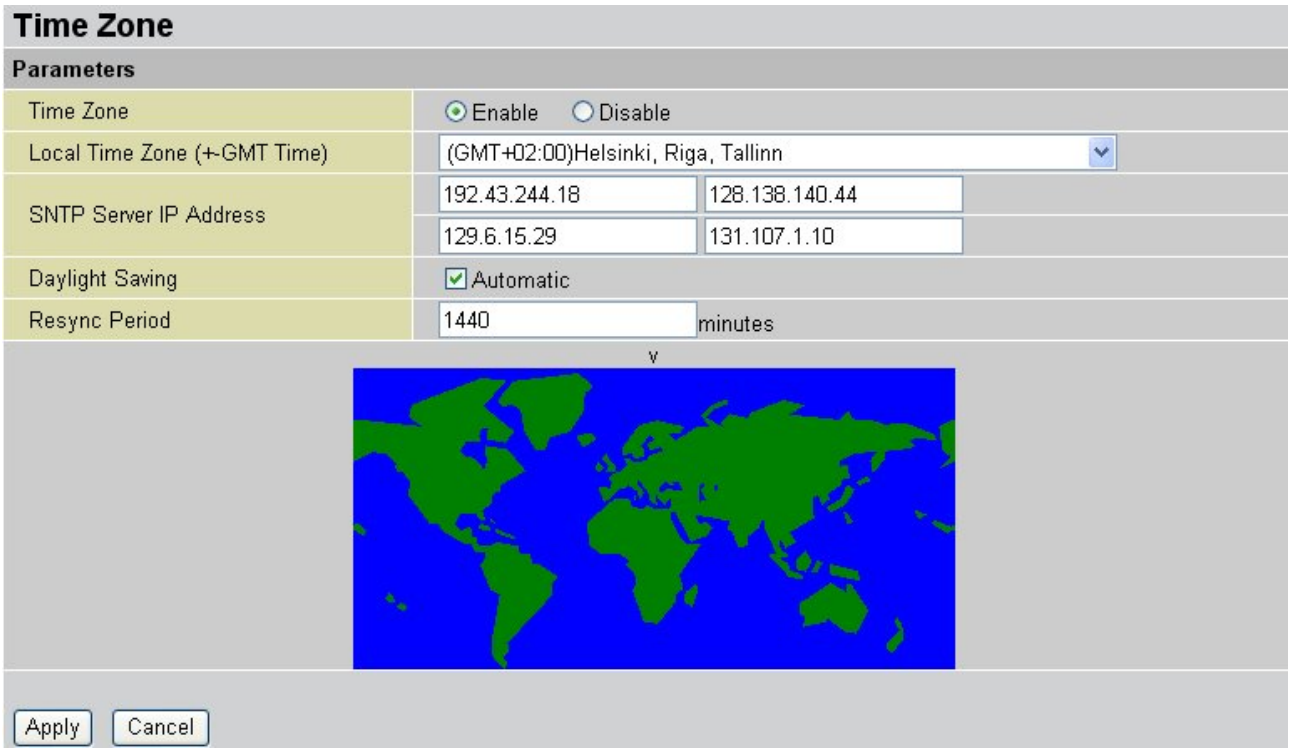


- ADSL Mode: There are four modes “Open Annex Type and Fo;;ow DSLAM’s Setting”, ”Annex A Only”, ”Annex L Only” and ”Annex M Only” that user can select for this connection.
- **Modilator:** There are four modes “**AUTO**”,”**ADSL multimode**”,”**ADSL2**”and”**ADSL2+**” that user can select for this connection.
- DSP Firmware Version: DSP code version
- DMT Status: DMT Status
- **Operational Mode:** To show the state when user select “AUTO” on connect mode.
- **Annex Type:** To show the router’s type, e.g. Annex A, Annex B
- Upstream: Upstream rate
- **Downstream:** Downstream rate

4.3.3 System

There are six items within the **System** section: **Time Zone, Remote Access, Firmware Upgrade, Backup/Restore, Restart** and **User Management.**

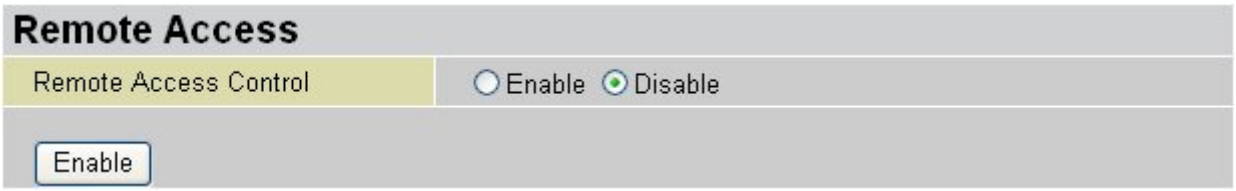
4.3.3.1 Time Zone



The router does not have a real time clock on board; instead, it uses the Simple Network Time Protocol (SNTP) to get the current time from an SNTP server outside your network. Choose your local time zone, click **Enable** and click the **Apply** button. After a successful connection to the Internet, the router retrieves the correct local time from the SNTP server you have specified. If you prefer to specify an SNTP server other than those in the drop-down list, simply enter its IP address as shown above. Your ISP may provide an SNTP server for you to use.

Resync Period (in minutes) is the periodic interval the router waits before it resynchronizes the router's time with that of the specified SNTP server. To avoid unnecessarily increasing the load on your specified SNTP server you should keep the poll interval as high as possible – at the absolute minimum every few hours or even days.

4.3.3.2 Remote Access

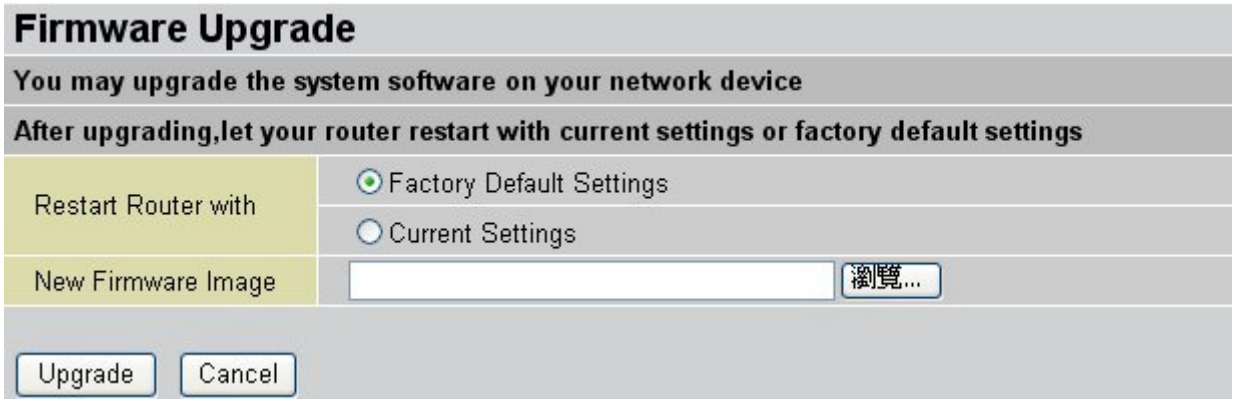


To temporarily permit remote administration of the router (i.e. from outside your LAN), select a time period the router permits remote access for and click **Enable.** You may change other configuration options for the web administration interface using **Device Management** options in the **Advanced** section of the GUI.

4.3.3.3 Firmware Upgrade

Your router's "firmware" is the software that allows it to operate and provides all its functionality. Think of your router as a dedicated computer, and the firmware as the software it runs. Over time this software may be improved and modified. Your router allows you to upgrade the software it runs to take advantage of these changes.

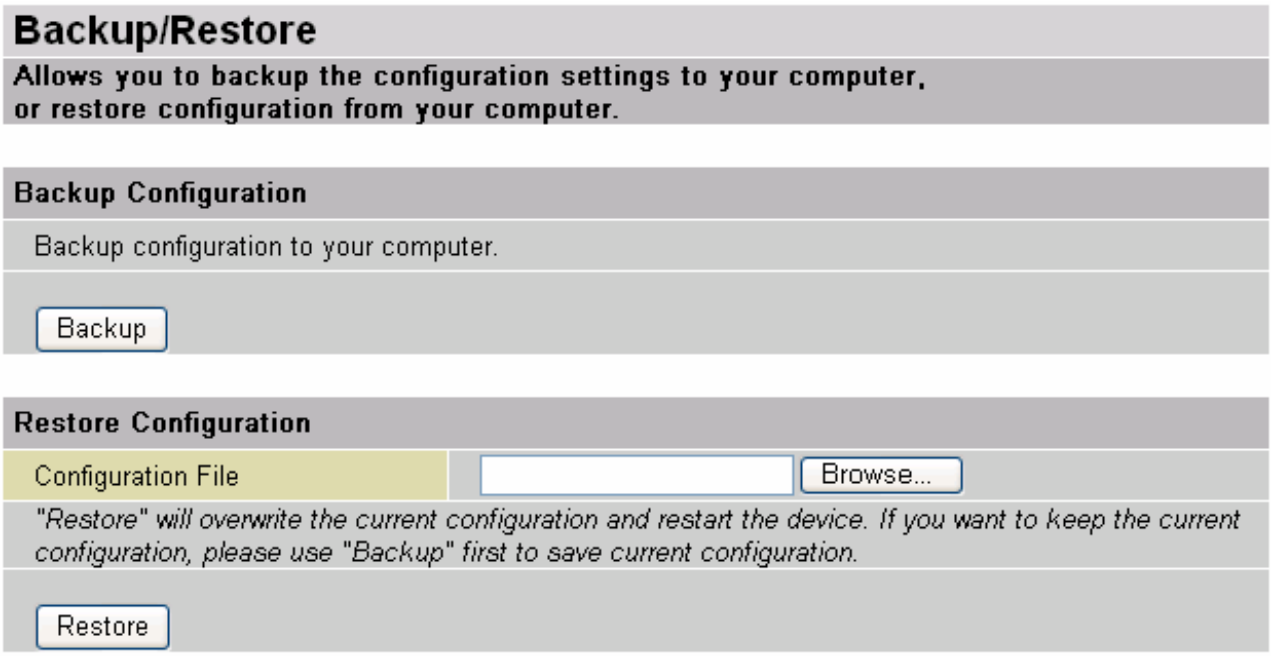
Clicking on **Browse** allows you to select the new firmware image file you have downloaded to your PC. Once the correct file is selected, click Upgrade to update the firmware in your router.



- **Restart Router with:** To choose "Factory Default Setting" or "Current Settings" that user want.
- **New Firmware Image:** Type in the location of the file you wish to upload in this field or click **Browse ...** to find it.
- **Browse...:** Click **Browse...** to find the .ras file you wish to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
- **Upgrade**: Click **upgrade** to begin the upload process. This process may take up to two minutes.

DO NOT power down the router or interrupt the firmware upgrade while it is still in process. Improper operation may damage the router. Please see section 2.4 for emergency recovery procedures.

4.3.3.4 Backup / Restore


Backup/Restore
Allows you to backup the configuration settings to your computer,
or restore configuration from your computer.
Backup Configuration
Backup configuration to your computer.
Backup
Restore Configuration
Configuration File
Browse...
"Restore" will overwrite the current configuration and restart the device. If you want to keep the current configuration, please use "Backup" first to save current configuration.
Restore

These functions allow you to save and backup your router's current settings to a file on your PC, or to restore a previously saved backup. This is useful if you wish to experiment with different settings, knowing that you have a backup handy in the case of any mistakes. It is advisable to backup your router's settings before making any significant changes to your router's configuration.

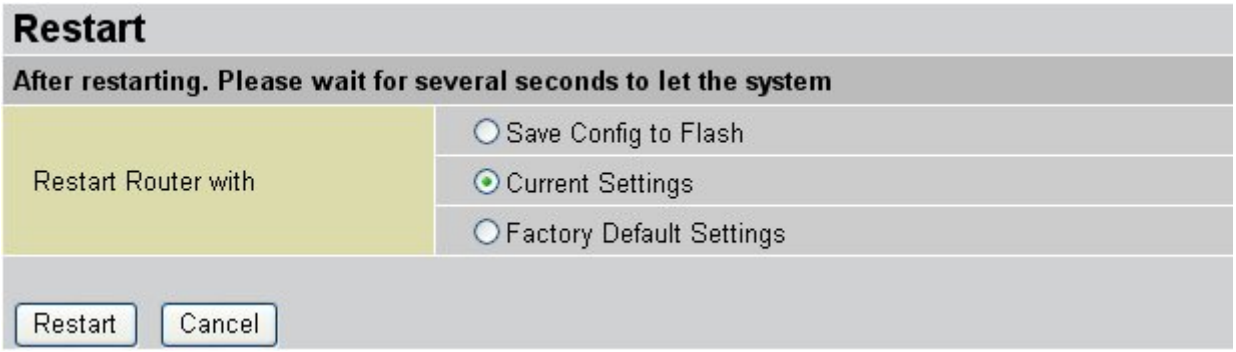
Press **Backup** to select where on your local PC to save the settings file. You may also change the name of the file when saving if you wish to keep multiple backups.

Press **Browse** to select a file from your PC to restore. You should only restore settings files that have been generated by the Backup function, and that were created when using the **current version** of the router's firmware. **Settings files saved to your PC should not be manually edited in any way.**

Select the settings files you wish to use, and press **Restore** to load those settings into the router.

4.3.3.5 Restart Router

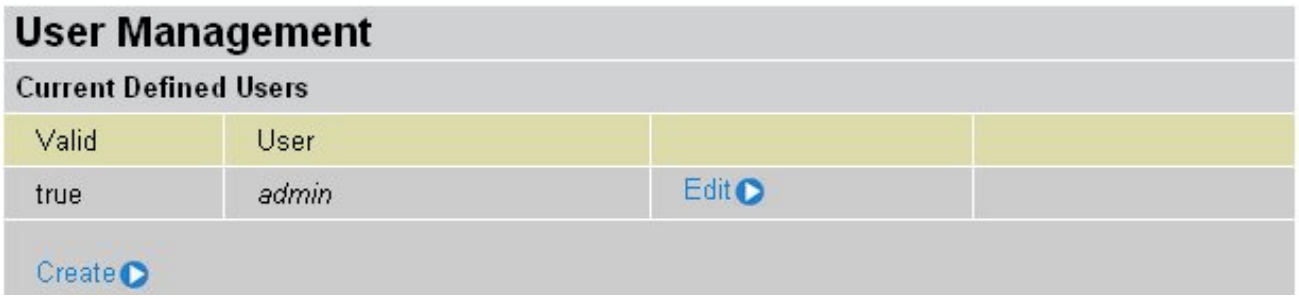
Click **Restart** with option **Current Settings** to reboot your router and restore your last saved configuration.



If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select ***Factory Default Settings*** to reset to factory default settings.

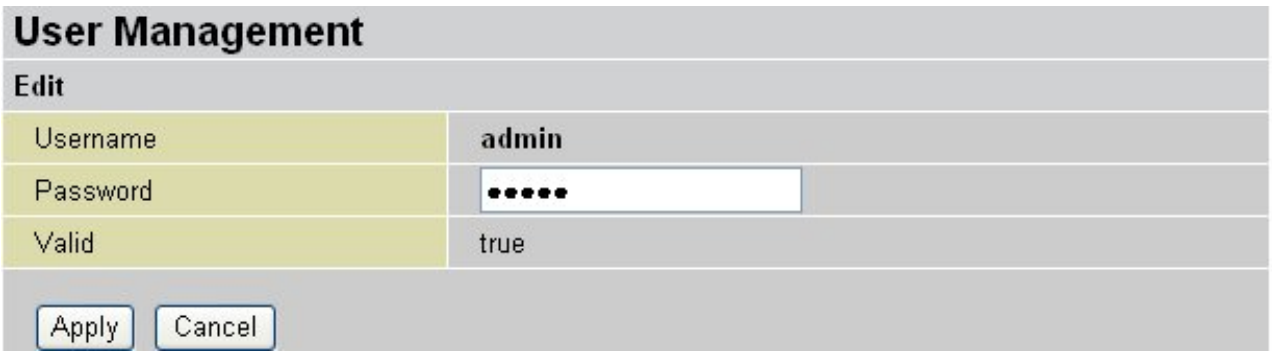
You may also reset your router to factory settings by pressing in the small Reset pinhole button on the back of your router for 10-12 seconds while the router is turned on.

4.3.3.6 User Management



To prevent unauthorized access to your router's configuration interface, all users are required to login with a password. You can set up multiple user accounts, each with their own password.

You are able to **Edit** existing users and **Create** new users who are able to access the device's configuration interface. Once you have clicked on **Edit,** you are shown the following options:



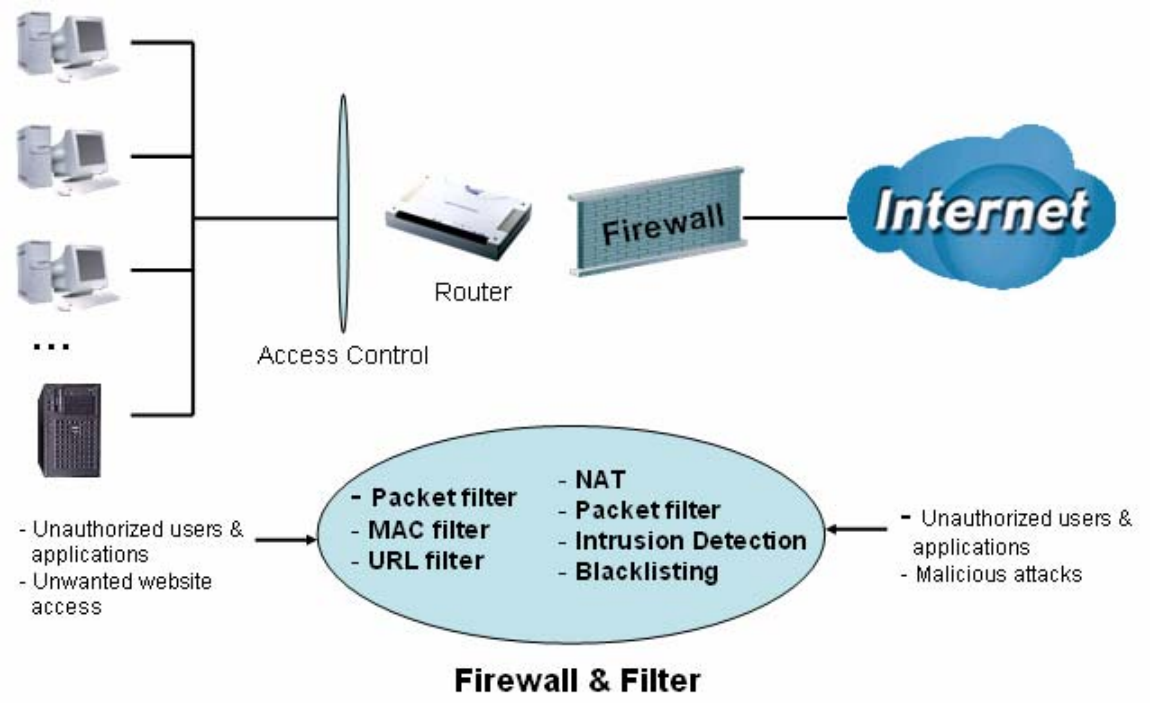
You can change the user's **password**, whether their account is active and **Valid**, as well as add a comment to each user account. These options are the same when creating a user account, with the exception that once created you cannot change the username. You cannot delete the default admin account; however you can delete any other created accounts by clicking **Cancel** when editing the user.

You are strongly advised to change the password on the default "**admin**" account when you receive your router, and any time you reset your configuration to Factory Defaults.

4.3.4 Firewall

Firewall and Access Control

Your router includes a full SPI (Stateful Packet Inspection) firewall for controlling Internet access from your LAN, as well as helping to prevent attacks from hackers. In addition to this, when using NAT (Network Address Translation) the router acts as a "natural" Internet firewall, since all PCs on your LAN use private IP addresses that cannot be directly accessed from the Internet. See the **WAN** configuration section for more details on NAT.



Firewall & Filter

Firewall: Prevents access from outside your network. The router provides three levels of security support:

NAT natural firewall: This masks LAN users' IP addresses, which are invisible to outside users on the Internet, making it much more difficult for a hacker to target a machine on your network. This natural firewall is on when the NAT function is enabled.

NOTE:

When using Virtual Servers (port forwarding) your PCs are exposed to the degree specified in your Virtual Server settings provided the ports specified are opened in your firewall packet filter settings.

Firewall Security and Policy (General Settings): Inbound direction of Packet Filter rules

prevent unauthorized computers or applications accessing your local network from the Internet.

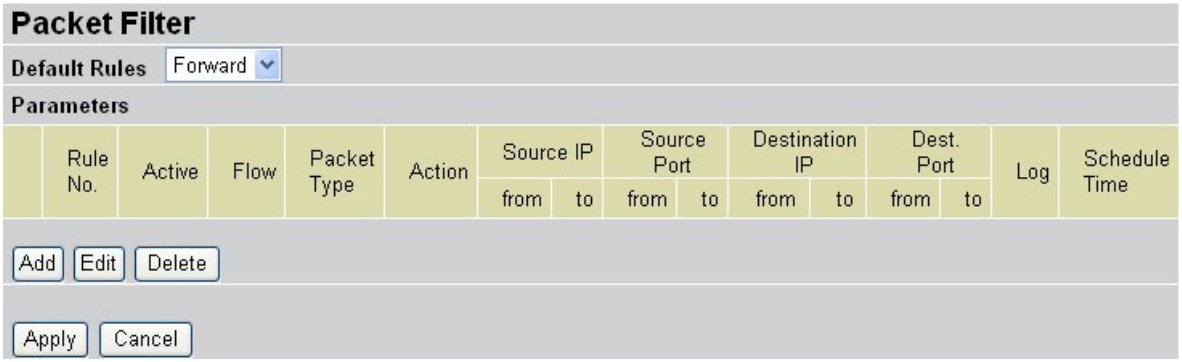
MAC Filter rules: Prevents unauthorized computers accessing the Internet.

URL Filter: Blocks PCs on your local network from unwanted websites.

A detailed explanation of each of the following five items appears in the **Firewall** section below: Packet Filter, MAC Address Filter, Block WAN Request and URL Filter.

4.3.4.1 Packet Filter

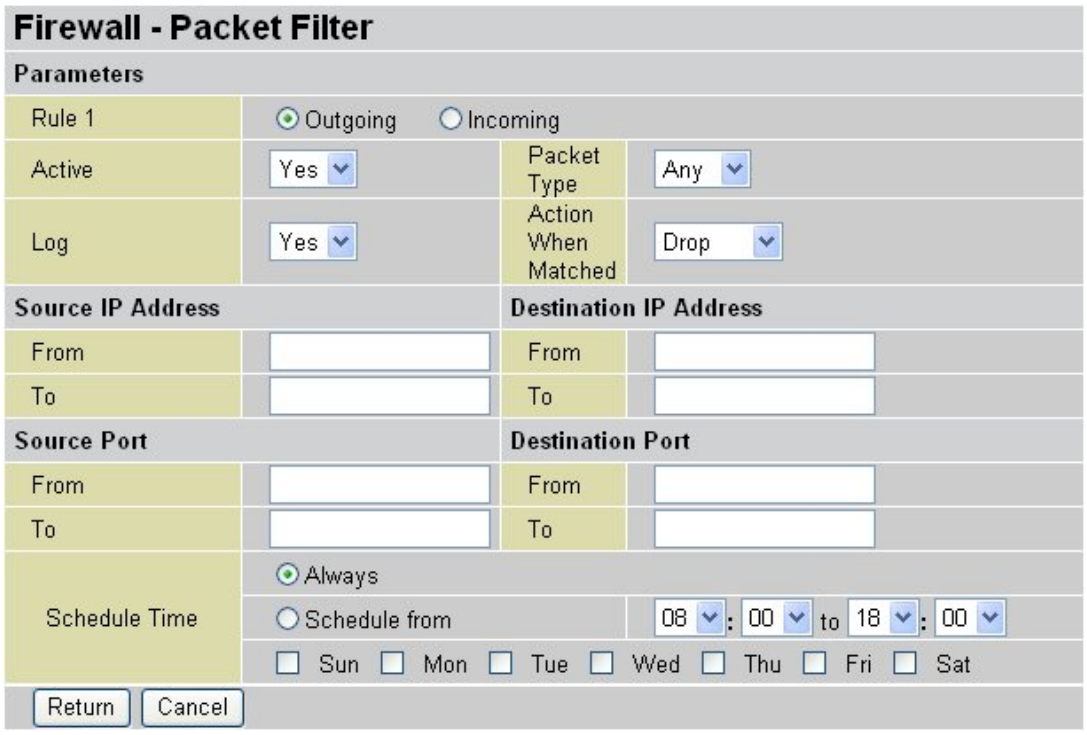
Packet filtering enables you to configure your router to block specified internal/external users (**IP address**) from Internet access, or you can disable specific service requests (**Port number**) to /from Internet. This configuration program allows you to set up to 6 different filter rules for different users based on their IP addresses or their network Port number. The relationship among all filters is **"or"** operation, which means that the router checks these different filter rules one by one, starting from the first rule. As long as one of the rules is satisfied, the specified action is taken.



Add: Click this button to add a new packet filter rule and the next figure appears.

Edit: Check the Rule No. you wish to edit, and then click "Edit".

Delete: Check the Rule No. you wish to delete, and then click "Delete".



⊙ Outgoing ⊙ Incoming: Determine whether the rule is for outgoing packets or for incoming packets.

- **Active:** Choose “Yes” to enable the rule, or choose “No” to disable the rule.
- **Packet Type:** Specify the packet type (TCP, UDP, ICMP or any) that the rule applies to.

Select **TCP** if you wish to search for the connection-based application service on the remote server using the port number. Or select **UDP** if you want to search for the connectionless application service on the remote server using the port number.

- **Log:** Choose “Yes” if you wish to generate logs when the filer rule is applied to a packet.
- **Action When Matched:** If a packet matches this filter rule, **Forward** or **Drop** this packet.
- **Source IP Address:** Enter the incoming or outgoing packet’s source IP address(es).
- **Source Port:** Check the TCP or UDP packet’s source port number(s).
- **Destination IP Address:** Enter the incoming or outgoing packet’s destination IP address(es).
- Destination Port: Check the TCP or UDP packet’s destination port number(s).
- Schedule time: User can setup the time to use the packet filter.

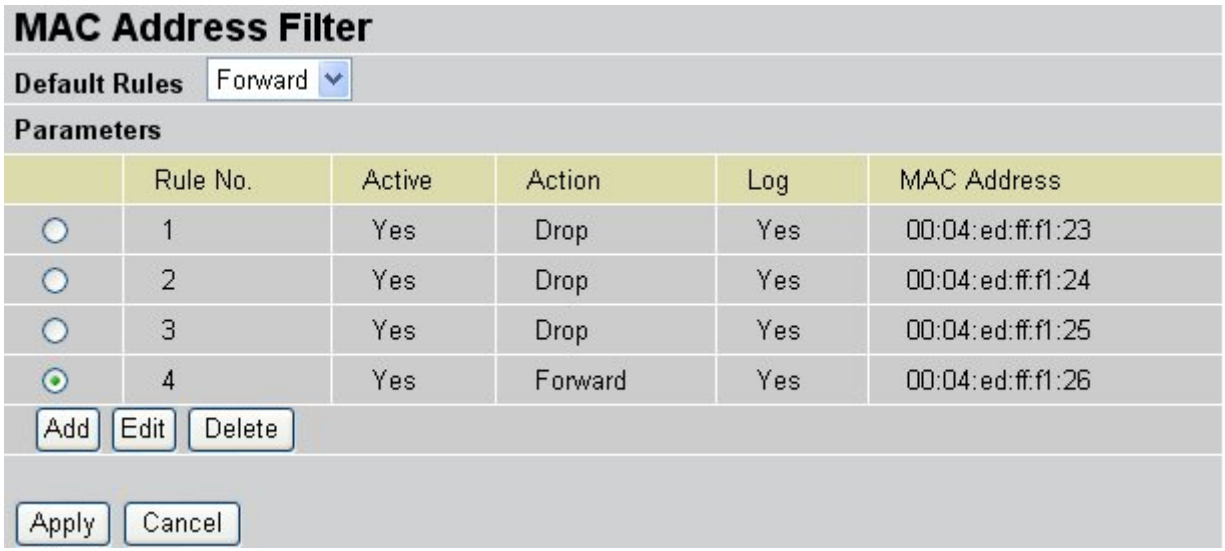
Attention

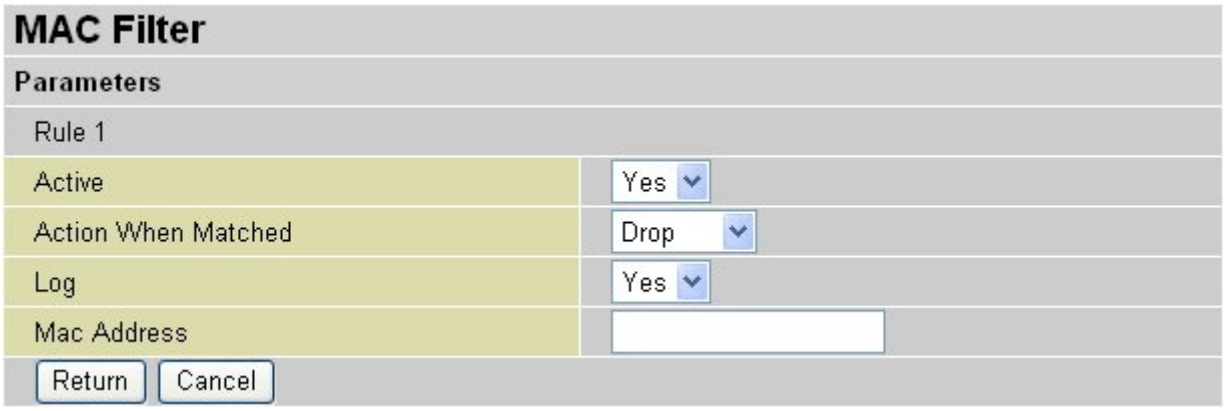
If the DHCP server option is enabled, you must be very careful in assigning IP addresses of a filtered private IP range to avoid conflicts because you do not know which PC in the LAN is assigned which IP address. The easiest and safest way is that the filtered IP address is assigned to a specific PC that is not allowed to access an outside resource such as the Internet. You configure the filtered IP address manually for this PC, but it stays in the same subnet with the router.

4.3.4.2 MAC Address Filter

A MAC (Media Access Control) address is the unique network hardware identifier for each PC on your network’s interface (i.e. its Network Interface Card or Ethernet card). Using your router’s MAC Address Filter function, you can configure the switch to only accept traffic from specified machines, or else to block specific machines from accessing your LAN.

There are no pre-defined MAC address filter rules; you can add the filter rules to meet your requirements.

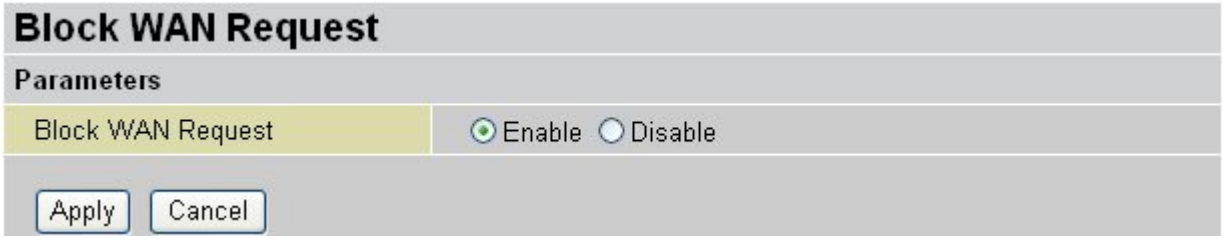




- **Active:** Select **Yes** from the drop down list box to enable MAC address filtering.
- **Action When Matched:** Select “Drop” or “Forward”.
- **Log:** Choose “Yes” if you wish to generate logs when the filer rule is applied to a packet.
- **MAC Address:** Enter the MAC addresses you wish to manage.

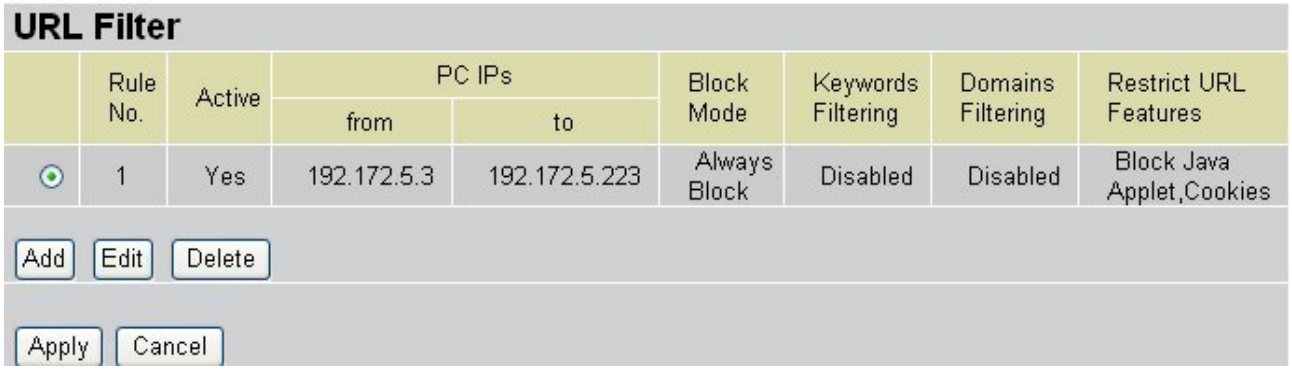
4.3.4.3 Block WAN Request

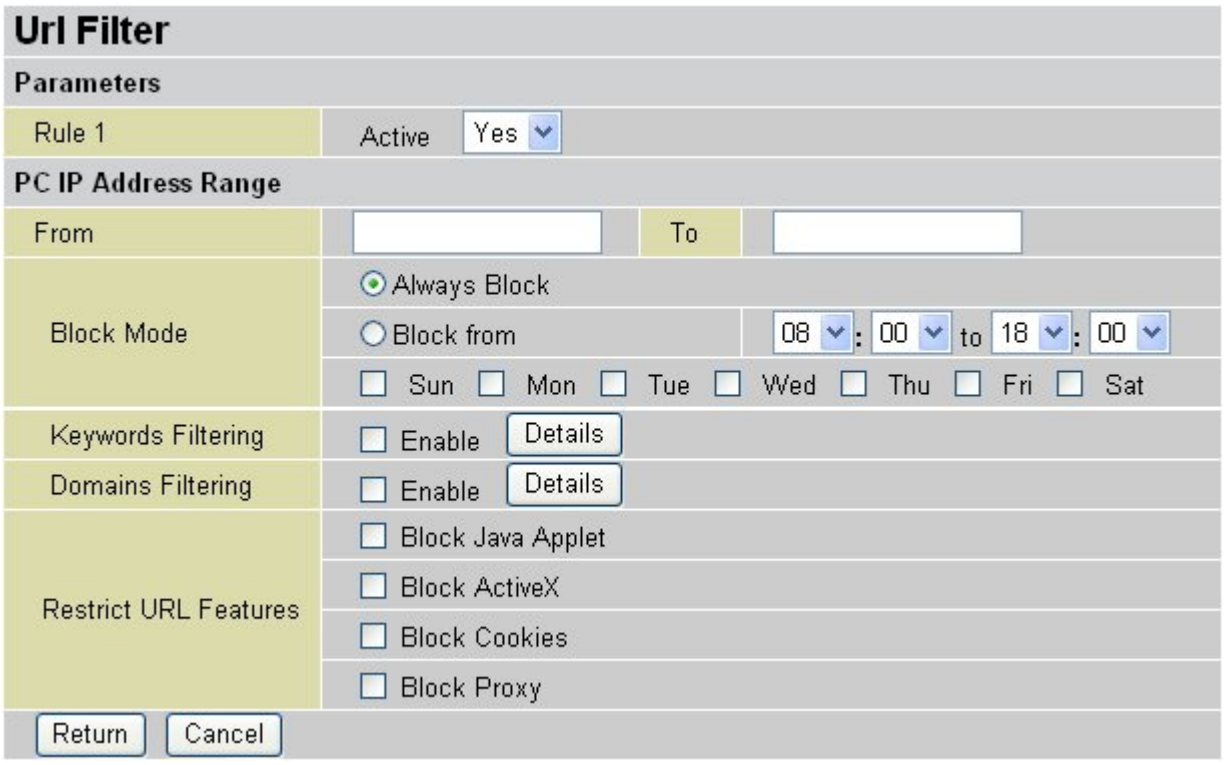
Check “Enable” if you wish to exclude outside PING requests from reaching this router.



4.3.4.4 URL Filter

URL (Uniform Resource Locator – e.g. an address in the form of **http://www.yahoo.com** or **http://www.example.com**) filter rules allow you to prevent users on your network from accessing particular websites from their URL. There are no pre-defined URL filter rules; you can add filter rules to meet your requirements.

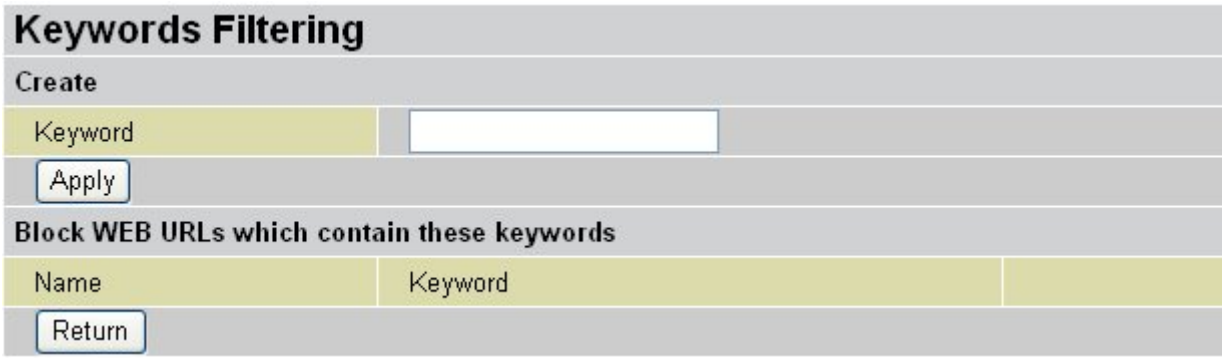




- **Active:** Select **Yes** from the drop down list box to enable or disable the URL Filter feature.
- **Always Block:** Select to always check URL filter rules (i.e. at all hours of the day).
- **Block from:** Specify the time period to check URL filter rules (e.g. during work hours).
- **Keywords Filtering:** Allows blocking by specific keywords within a particular URL rather than having to specify a complete URL (e.g. to block any image called “advertisement.gif”). When enabled, your specified keywords list is checked to see if any keywords are present in URLs accessed to determine if the connection attempt should be blocked. Note that the URL

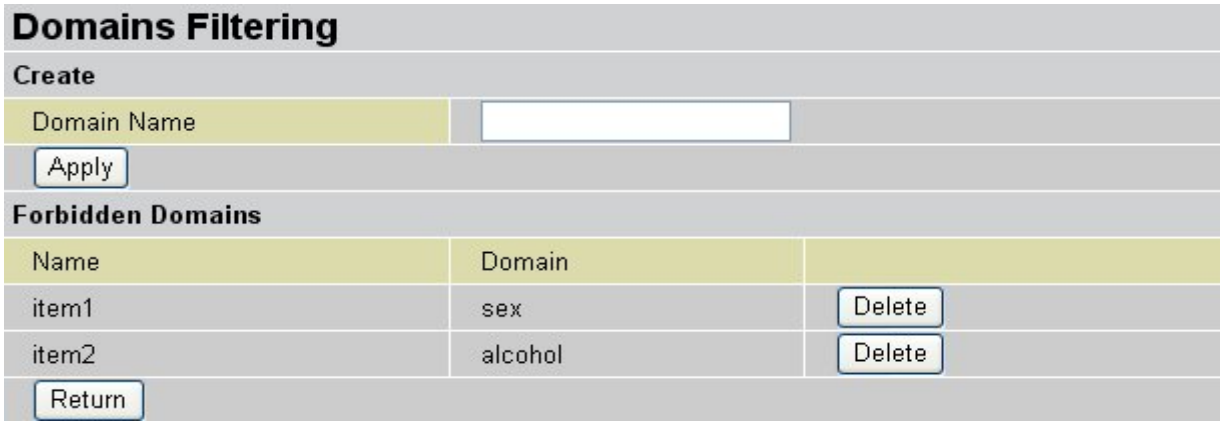
filter blocks web browser (HTTP) connection attempts using port 80 only.

For example, the URL http://www.abc.com/abcde.html would be dropped since the keyword “abcde” occurs in the URL.



Domains Filtering: Checks the domain name in URLs accessed against your list of domains to block or allow. If it matches, the URL request is sent (Trusted) or dropped (Forbidden). The checking procedure is:

1. Check the domain in the URL to determine if it is in the trusted list. If yes, the connection attempt is sent to the remote web server.
2. If not, it is checked with the forbidden list. If present, the connection attempt is dropped.
3. If the packet matches neither of the above, it is sent to the remote web server.
4. Please note that only the domain is specified, not the full URL. For example to block traffic to www.sex.com, enter “sex” or “sex.com” instead of “www.sex.com”. In the example below, the URL request for www.abc.com is sent to the remote web server because it is listed in the trusted list, while the URL request for www.sex or www.sex.com is dropped because sex.com is in the forbidden list.



Restrict URL Features

Block Java Applet: Blocks Web content which includes the Java Applet to prevent someone who wants to damage your system via the standard HTTP protocol.

- Block ActiveX: Blocks ActiveX
- Block Cookies: Blocks Cookies
- Block Proxy: Blocks Proxy

4.3.5 Virtual Server

In TCP/IP and UDP networks a port is a 16-bit number used to identify which application program (usually a server) incoming connections should be delivered to. Some ports have numbers that are pre-assigned to them by the IANA (the Internet Assigned Numbers Authority), and these are referred to as “well-known ports”. Servers follow the well-known port assignments so clients can locate them.

If you wish to run a server on your network that can be accessed from the WAN (i.e. from other machines on the Internet that are outside your local network), or any application that can accept incoming connections (e.g. Peer-to-peer/P2P software such as instant messaging applications and P2P file-sharing applications) and are using NAT (Network Address Translation), then you need to configure your router to forward these incoming connection attempts using specific ports to the PC on your network running the application. You also need to use port forwarding if you wish to host an online game server.

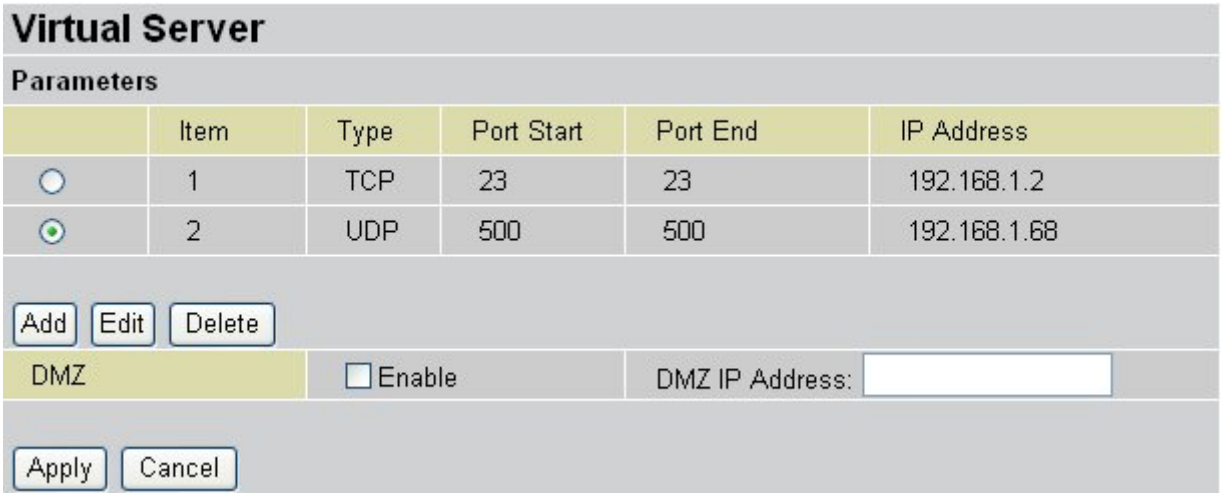
The reason is that when using NAT, your publicly accessible IP address is used by and points to your router, which needs to deliver all traffic to the private IP addresses used by your PCs. Please see the **WAN** configuration section of this manual for information on NAT.

The Internet Assigned Numbers Authority (IANA) is the central coordinator for the assignment of unique parameter values for Internet protocols. Port numbers range from 0 to 65535, but only port numbers 0 to 1023 are reserved for privileged services and are designated as “well-known ports”. The registered ports are numbered from 1024 through 49151. The remaining ports, referred to as dynamic ports, or private ports, are numbered from 49152 through 65535.

Examples of well-known and registered port numbers are shown below, for further information, please see IANA’s website at: http://www.iana.org/assignments/port-numbers

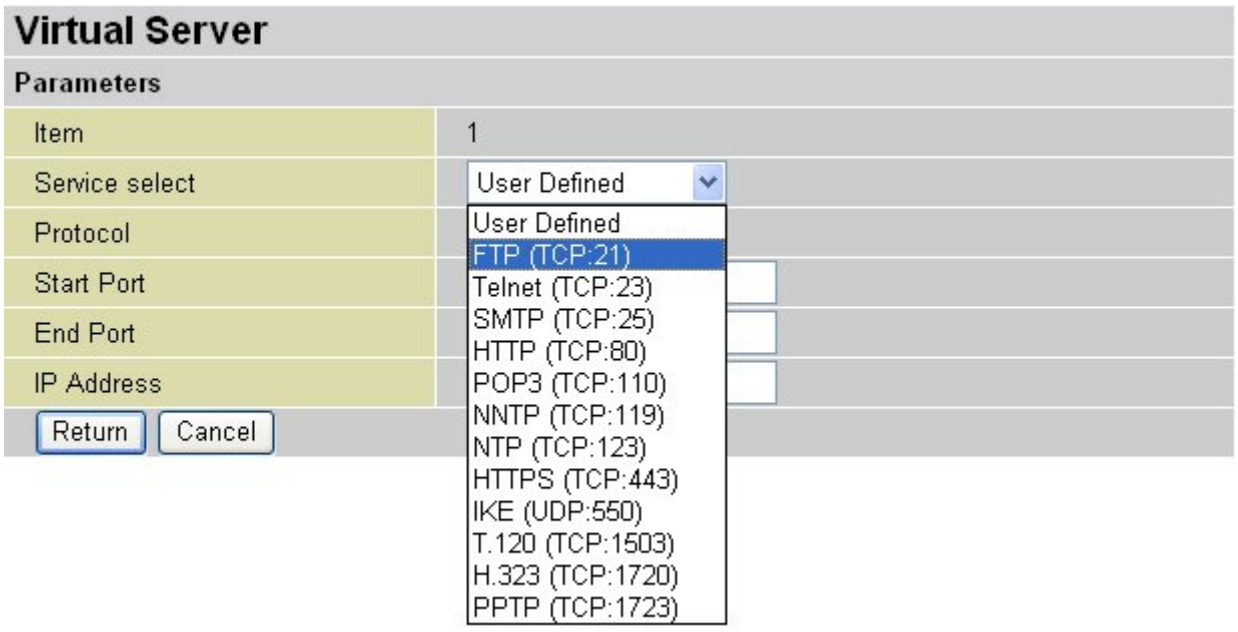
Well-known and Registered Ports

Port Number	Protocol	Description
20	TCP	FTP Data
21	TCP	FTP Control
22	TCP & UDP	SSH Remote Login Protocol
23	TCP	Telnet
25	TCP	SMTP (Simple Mail Transfer Protocol)
53	TCP & UDP	DNS (Domain Name Server)
69	UDP	TFTP (Trivial File Transfer Protocol)
80	TCP	World Wide Web HTTP
110	TCP	POP3 (Post Office Protocol Version 3)
119	TCP	NEWS (Network News Transfer Protocol)
123	UDP	NTP (Network Time Protocol)
161	TCP	SNMP
443	TCP & UDP	HTTPS
1503	TCP	T.120
1720	TCP	H.323
4000	TCP	ICQ
7070	UDP	RealAudio



- **Item:** Item number
- **Type:** Select **TCP** if you wish to search for connection-based application services on the remote server using the port number.
- **Port Start & Port End:** Enter the public port number & range you wish to configure.
- **IP Address:** Enter the IP address of a specific internal server to which requests from the specified port is forwarded.
- **Add:** Click to add a new virtual server rule. Click again and the next figure appears.
- **Edit:** Check the Rule No. you wish to edit and then click “Edit”.

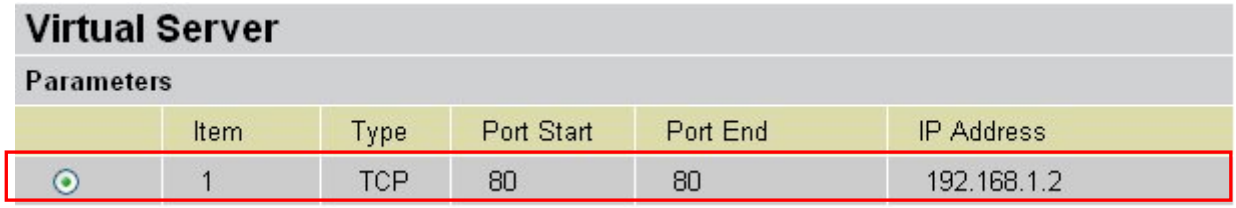
Delete: Check the Rule No. you wish to delete, then click “Delete”.



Item: Item number
Service select: Select the service you wish to configure
Protocol: Automatic when you choose Service select
Start Port & End Port: Enter the public port number & range you wish to configure.
IP Address: Enter the IP address of a specific internal server to which requests from the specified port is forwarded.

Since NAT acts as a “natural” Internet firewall, your router protects your network from access by outside users, as all incoming connection attempts point to your router unless you specifically create Virtual Server entries to forward those ports to a PC on your network. When your router needs to allow outside users to access internal servers, e.g. a web server, FTP server, Email server or game server, the router can act as a “virtual server”. You can set up a local server with a specific port number for the service to use, e.g. web/HTTP (port 80), FTP (port 21), Telnet (port 23), SMTP (port 25), or POP3 (port 110). When an incoming access request to the router for a specified port is received, it is forwarded to the corresponding internal server.

For example, if you set the port number 80 (Web/HTTP) to be mapped to the IP Address 192.168.0.2, then all incoming HTTP requests from outside users are forwarded to the local server (PC) with the IP address of 192.168.0.2. If the port is not listed as a predefined application, you need to add it manually.



In addition to specifying the port number used, you also need to specify the protocol used. The protocol is determined by the particular application. Most applications use TCP or UDP, however you can specify other protocols using the drop-down **Protocol** menu. Setting the protocol to “all” causes all incoming connection attempts using all protocols on all port numbers to be forwarded to the specified IP address.

DMZ: The DMZ Host is a local computer exposed to the Internet. When setting a particular internal IP address as the DMZ Host, all incoming packets are checked by the Firewall and NAT algorithms, then passed to the DMZ host when a packet received does not use a port number in use by any other Virtual Server entries.

Using port forwarding does have security implications, since outside users are able to connect to PCs on your network. For this reason you are advised to use specific Virtual Server entries just for the ports your application requires instead of simply using DMZ or creating a Virtual Server entry for “All” protocols, as doing so results in all connection attempts to your public IP address accessing the specified PC.

Attention

If you disable the NAT option in the WAN-ISP section, the Virtual Server function becomes invalid.

Attention

If the DHCP server option is enabled, you have to be very careful in assigning the IP addresses of the virtual servers in order to avoid conflicts. The easiest way of configuring Virtual Servers is to manually assign a static IP address to each virtual server PC, with an address that does not fall into the range of IP addresses that are issued by the DHCP server. You can configure the virtual server IP address manually, but it must still be in the same subnet as the router.

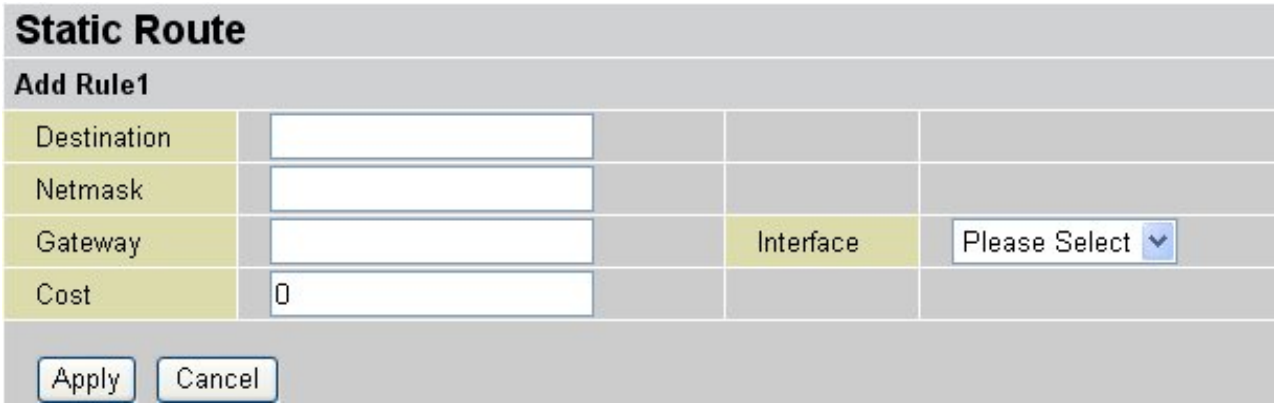
4.3.6 Advanced

Configuration options within the **Advanced** section are for users who wish to take advantage of the more advanced features of the router. Users who do not understand the features should not attempt to reconfigure their router, unless advised to do so by support staff.

There are four items within the **Advanced** section: **Static Route, Dynamic DNS**, and **Device Management.**

4.3.6.1 Static Route

Click on **Routing Table** and then choose **Create Route** to add a routing table.



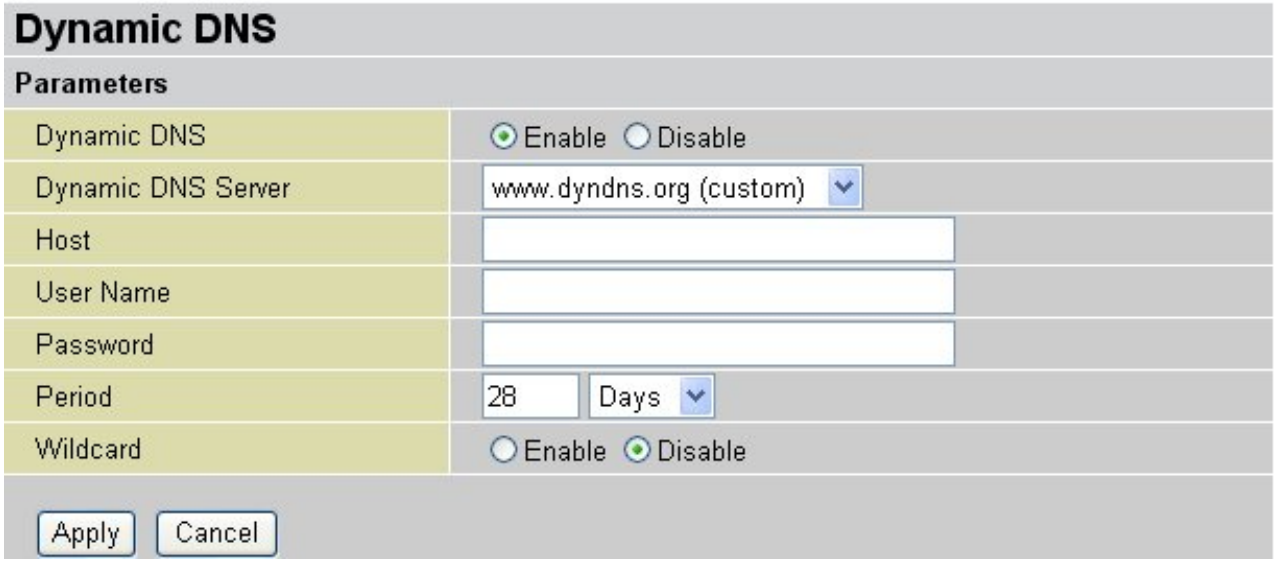
- **Destination:** The destination subnet IP address.
- **Netmask:** Subnet mask of the destination IP addresses based on above destination.
- **Gateway:** The gateway IP address to which packets are forwarded.
- **Interface:** Select the interface through which packets are forwarded.
- **Cost:** Represents the cost of transmission for routing purposes. The number need not be precise, but it must be between 0 and 65535.

4.3.6.2 Dynamic DNS

The Dynamic DNS function lets you alias a dynamic IP address to a static hostname, so if your ISP does not assign you a static IP address you can still use a domain name. This is especially useful for hosting servers via your ADSL connection, so that anyone wishing to connect to you may use your domain name, rather than having to use your dynamic IP address, which changes from time to time. This dynamic IP address is the WAN IP address

of the router, which is assigned to you by your ISP.

You first need to register and establish an account with the Dynamic DNS provider using their website, for example http://www.dyndns.org/

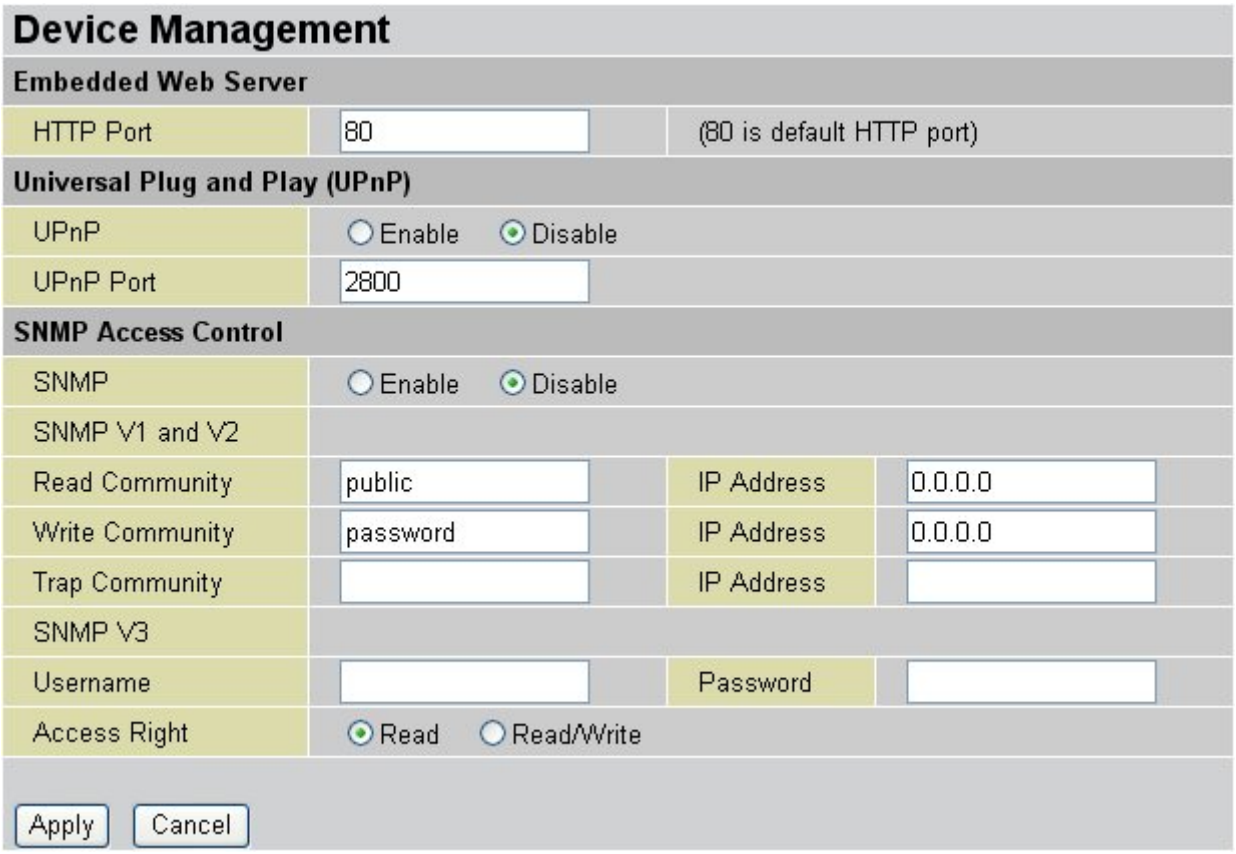


There are more than 5 DDNS services supported.

- **Disable:** Check to disable the Dynamic DNS function.
- **Enable:** Check to enable the Dynamic DNS function. The fields following are activated and required.
- **Dynamic DNS Server:** Select the DDNS service you have established an account with.
- **Host:** Enter one domain name you have registered.
- **Domain Name, Username and Password:** Enter your registered domain name and your username and password for this service.
- **Period:** Set the time period between updates, for the router to exchange information with the DDNS server. In addition to updating periodically as per your settings, the router performs an update when your dynamic IP address changes.
- **Wildcard:** Select this check box to enable the DYNDNS Wildcard.

4.3.6.3 Device Management

The Device Management advanced configuration settings allow you to control your router's security options and device monitoring features.



Embedded Web Server:

HTTP Port: The port number of the router's embedded web server (for web-based configuration uses. The default value is the standard HTTP port, 80. You may specify an alternative if, for example, you are running a web server on a PC within your LAN.

For Example: User A changes HTTP port number to **100**, specifies their own IP address of **192.168.0.55**, and sets the logout time to be **100** seconds. The router only allows User A access from the IP address **192.168.0.55** to logon to the Web GUI by typing: http://**192.168.0.254:100** in their web browser. After 100 seconds, the device automatically logs out User A.

Universal Plug and Play (UPnP):

UPnP offers peer-to-peer network connectivity for PCs and other network devices, along with control and data transfer between devices. UPnP offers many advantages for users running NAT routers through UPnP NAT Traversal, and on supported systems makes tasks such as port forwarding much easier by letting the application control the required settings, removing the need for the user to control advanced configuration of their device.

Both the user's Operating System and the relevant application must support UPnP in addition to the router. Windows XP and Windows Me natively support UPnP (when the component is installed), and Windows 98 users may install the Internet Connection Sharing

client from Windows XP in order to support UPnP. Windows 2000 does not support UPnP.

- ⊙ **Disable:** Check to disable the router's UPnP functionality.
- ⊙ **Enable:** Check to enable the router's UPnP functionality.

UPnP Port: The default setting is 2800. It is highly recommended that you use this port value. If the value conflicts with other ports already in use you may wish to change the port.

SNMP Access Control

Simple Network Management Protocol—software on a PC within the LAN is required to use this function.

SNMP V1 and V2:

Read Community: Specify a name to be identified as the Read Community, and an IP address. This community string is checked against the string entered in the configuration file. Once the string name is matched, you can obtain this IP address and are able to view the data.

Write Community: Specify a name to be identified as the Write Community, and an IP address. This community string is checked against the string entered in the configuration file. Once a string name is matched, users from this IP address are able to view and modify data.

Trap Community: Specify a name and an IP address. This community string is checked against the string entered in the configuration file. Once a string name is matched, users from this IP address are sent SNMP Traps.

SNMP V3:

Specify a name and password for authentication, and define access rights from the identified IP address. Once authentication has succeeded, users from this IP address are able to view and modify data.

SNMP Version: SNMPv2c and SNMPv3

SNMPv2c is the combination of the enhanced protocol features of SNMPv2 without the SNMPv2 security. The "c" comes from the fact that SNMPv2c uses the SNMPv1 community string paradigm for "security" but is widely accepted as the SNMPv2 standard.

SNMPv3 is a strong authentication mechanism with fine granularity for remote monitoring.

Traps supported: Cold Start, Authentication Failure.

The following MIBs are supported:

- **From RFC 1213 (MIB-II):**
  - ☑ System group
  - ☑ Interfaces group
  - ☑ Address Translation group
  - ☑ IP group
  - ☑ ICMP group
  - ☑ TCP group
  - ☑ UDP group
  - ☒ EGP (not applicable)
  - ☑ Transmission
  - ☑ SNMP group

- **From RFC1650 (EtherLike-MIB):**
  - ☑ dot3Stats
- **From RFC 1493 (Bridge MIB):**
  - ☑ dot1dBase group
  - ☑ dot1dTp group
  - ☑ dot1dStp group (if configured as spanning tree)

- **From RFC 1471 (PPP/LCP MIB):**
  - ☑ pppLink group
  - ☒ pppLqr group

- **From RFC 1472 (PPP/Security MIB):**
  - ☑ PPP Security Group)

- **From RFC 1473 (PPP/IP MIB):**
  - ☑ PPP IP Group

- **From RFC 1474 (PPP/Bridge MIB):**
  - ☑ PPP Bridge Group

- **From RFC1573 (IfMIB):**
  - ☑ ifMIBObjects Group

- **From RFC1695 (atmMIB):**
  - ☑ atmMIBObjects

- **From RFC 1907 (SNMPv2):**
  - ☑ only snmpSetSerialNo OID

Universal Plug and Play (UPnP):

UPnP offers peer-to-peer network connectivity for PCs and other network devices, along with control and data transfer between devices. UPnP offers many advantages for users running NAT routers through UPnP NAT Traversal, and on supported systems makes tasks such as port forwarding much easier by letting the application control the required settings, removing the need for the user to control advanced configuration of their device.

Both the user's Operating System and the relevant application must support UPnP in addition to the router. Windows XP and Windows Me natively support UPnP (when the component is installed), and Windows 98 users may install the Internet Connection Sharing client from Windows XP in order to support UPnP. Windows 2000 does not support UPnP.

Disable: Check to disable the router's UPnP functionality.

Enable: Check to enable the router's UPnP functionality.

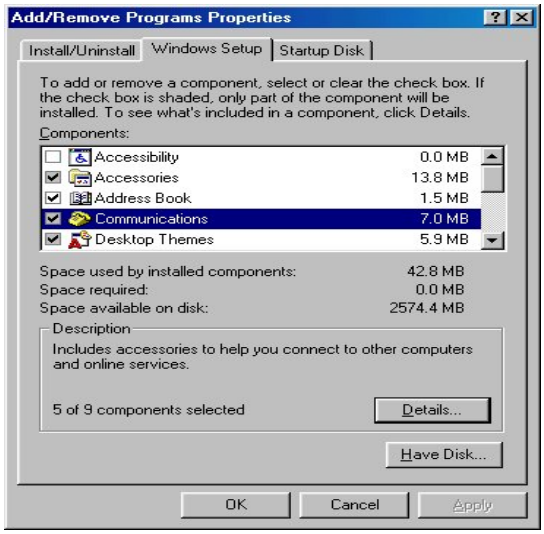
UPnP Port: The Default setting is 2800. It is highly recommended you use this port value. If this value conflicts with other ports already in use you may wish to change the port.

Installing UPnP in Windows Example

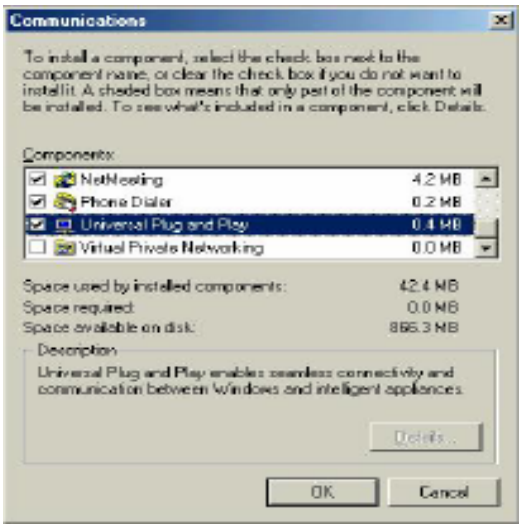
Follow the steps below to install the UPnP in Windows Me.

Step 1: Click Start and Control Panel. Double-click Add/Remove Programs.

Step 2: Click on the Windows Setup tab and select Communication in the Components selection box. Click Details.

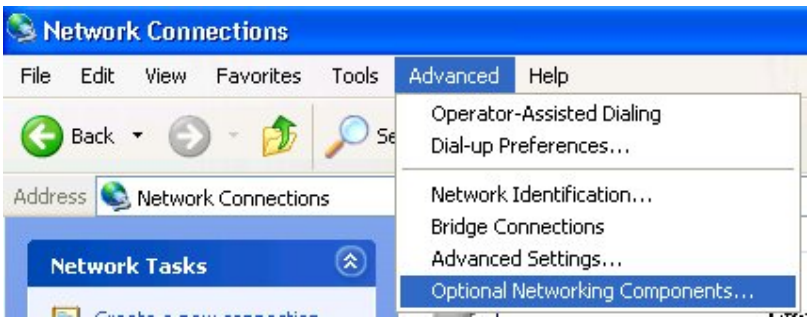

Add/Remove Programs Properties
Install/Uninstall
Windows Setup
Startup Disk
To add or remove a component, select or clear the check box. If the check box is shaded, only part of the component will be installed. To see what's included in a component, click Details.
Components:
Accessibility 0.0 MB
Accessories 13.8 MB
Address Book 1.5 MB
Communications 7.0 MB
Desktop Themes 5.9 MB
Space used by installed components: 42.8 MB
Space required: 0.0 MB
Space available on disk: 2574.4 MB
Description
Includes accessories to help you connect to other computers and online services.
5 of 9 components selected
Details...
Have Disk...
OK
Cancel
Apply

Step 3: In the Communications window, select the Universal Plug and Play check box in the Components selection box.



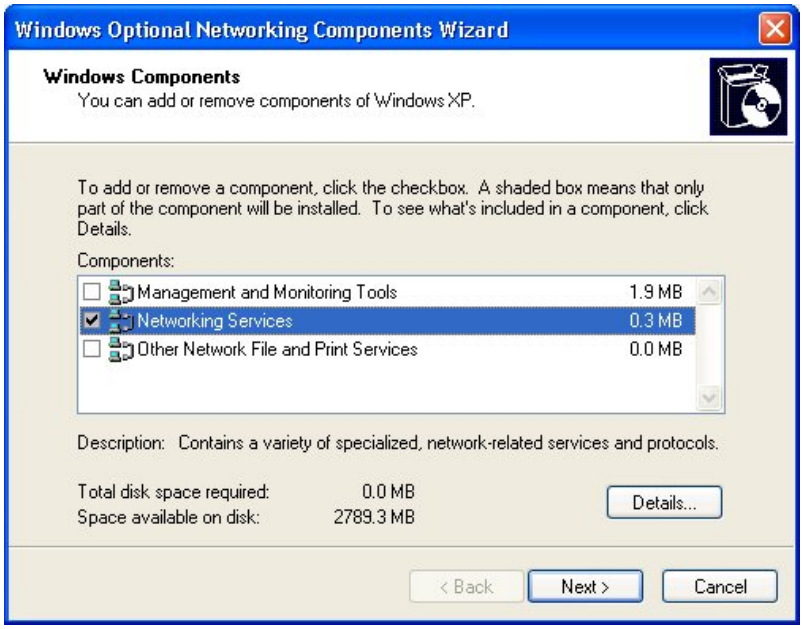
Step 4: Click OK to go back to the Add/Remove Programs Properties window. Click Next.
Step 5: Restart the computer when prompted.

Follow the steps below to install the UPnP in Windows XP.
Step 1: Click Start and Control Panel.
Step 2: Double-click Network Connections.
Step 3: In the Network Connections window, click Advanced in the main menu and select Optional Networking Components ….



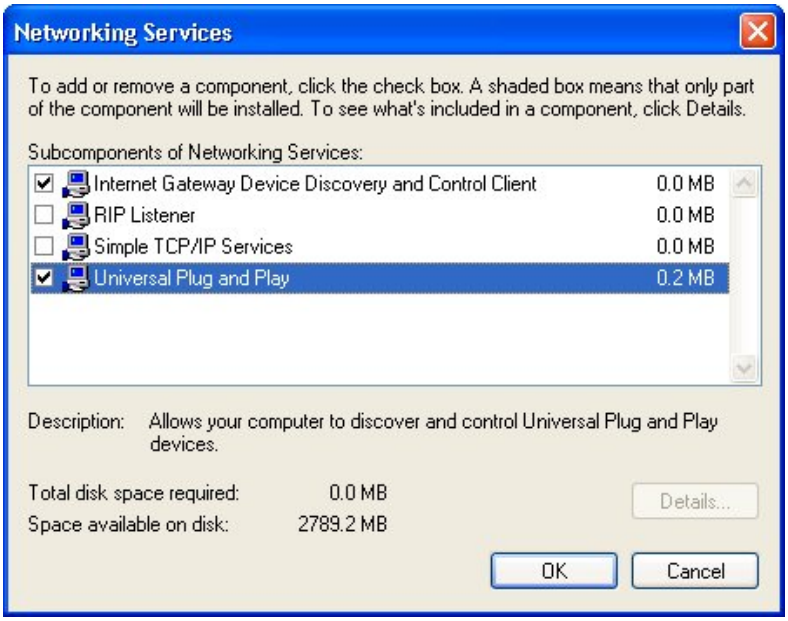
The Windows Optional Networking Components Wizard window displays.

Step 4: Select Networking Service in the Components selection box and click Details.


Windows Optional Networking Components Wizard
Windows Components
You can add or remove components of Windows XP.
To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
Components:
Management and Monitoring Tools 1.9 MB
Networking Services 0.3 MB
Other Network File and Print Services 0.0 MB
Description: Contains a variety of specialized, network-related services and protocols.
Total disk space required: 0.0 MB
Space available on disk: 2789.3 MB
Details...
< Back
Next >
Cancel

Step 5: In the Networking Services window, select the Universal Plug and Play check box.

Step 6: Click OK to go back to the Windows Optional Networking Component Wizard window and click Next.

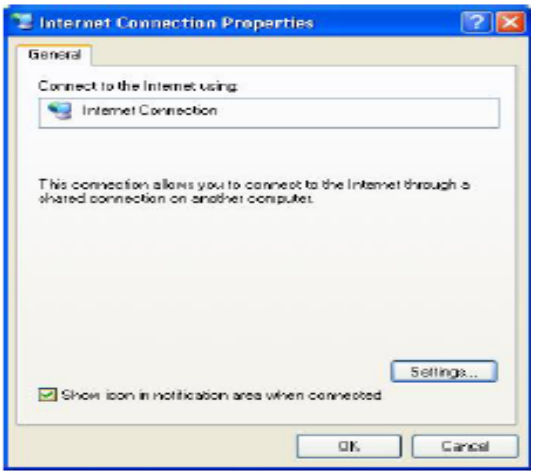

Networking Services
To add or remove a component, click the check box. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
Subcomponents of Networking Services:
Internet Gateway Device Discovery and Control Client 0.0 MB
RIP Listener 0.0 MB
Simple TCP/IP Services 0.0 MB
Universal Plug and Play 0.2 MB
Description: Allows your computer to discover and control Universal Plug and Play devices.
Total disk space required: 0.0 MB
Space available on disk: 2789.2 MB
Details...
OK
Cancel

Auto-discover Your UPnP-enabled Network Device

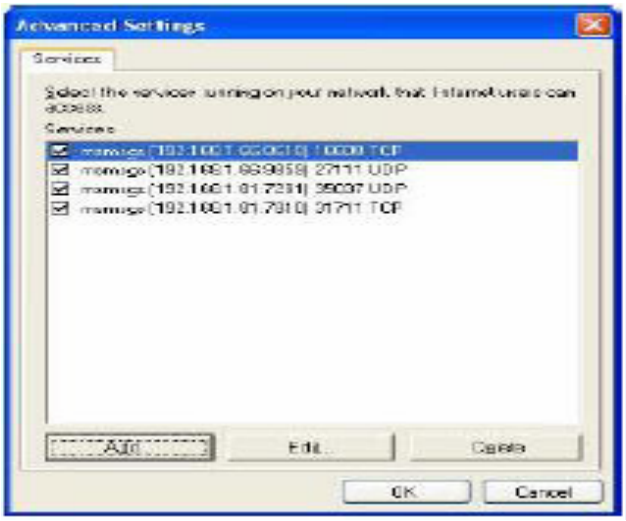
Step 1: Click start and Control Panel. Double-click Network Connections. An icon displays under Internet Gateway.

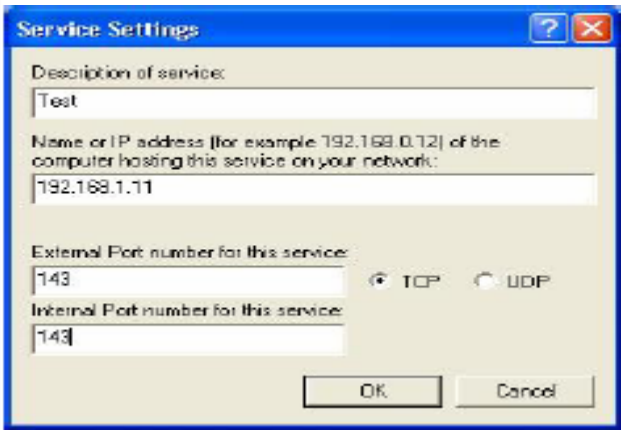
Step 2: Right-click the icon and select Properties.

Step 3: In the Internet Connection Properties window, click Settings to see the port mappings that were automatically created.

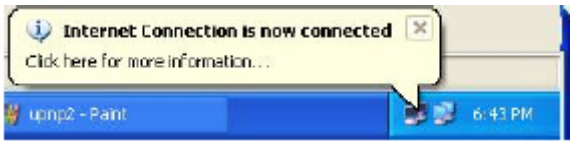

Internet Connection Properties
General
Connect to the Internet using:
Internet Connection
This connection allows you to connect to the Internet through a shared connection on another computer.
Settings...
Show icon in notification area when connected
OK
Cancel

Step 4: You may edit or delete the port mappings or click Add to manually add port mappings.

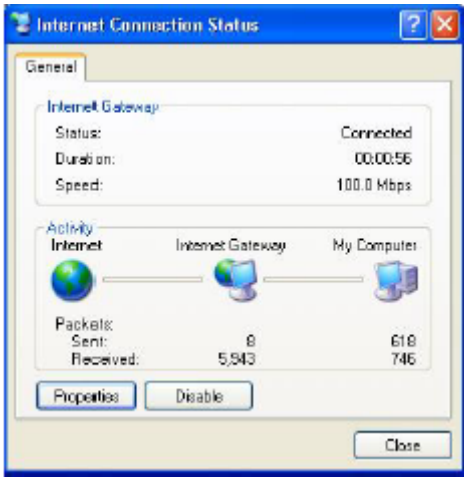




Step 5: Select Show icon in notification area when connected option and click OK. An icon displays in the system tray



Step 6: Double-click on the icon to display your current Internet connection status.



Web Configurator Easy Access

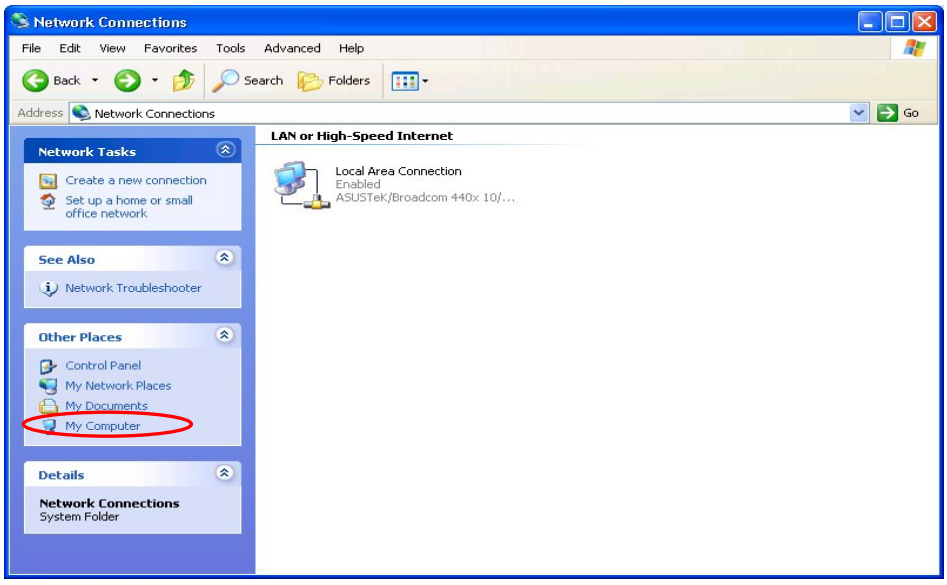
With UPnP, you can access web-based configuration for the router without first finding out the IP address of the router. This helps if you do not know the router's IP address.

Follow the steps below to access web configuration.

Step 1: Click Start and then Control Panel.

Step 2: Double-click Network Connections.

Step 3: Select My Network Places under Other Places.



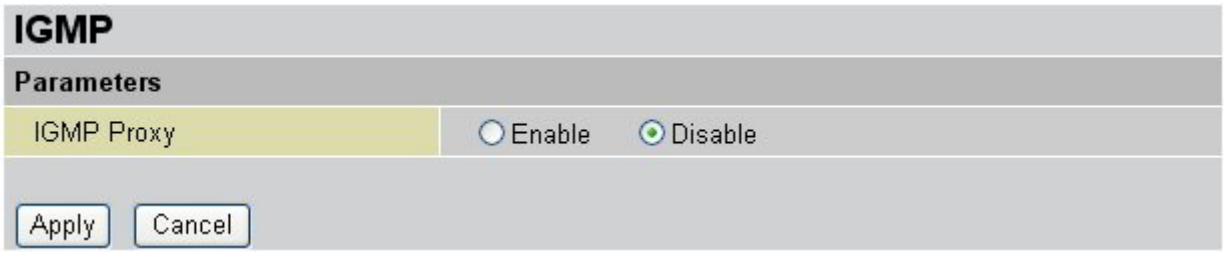
Step 4: An icon describing each UPnP-enabled device shows under Local Network.

Step 5: Right-click on the icon of your router and select Invoke. The web configuration login screen displays.

Step 6: Right-click on the icon of your router and select Properties. A properties window displays basic information about the router.

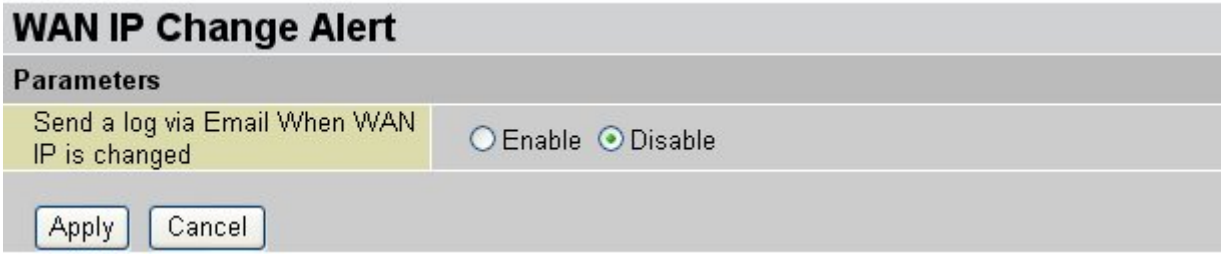
4.3.6.4 IGMP

IGMP, known as *Internet Group Management Protocol*, is used to management hosts from multicast group.



- **IGMP Proxy:** Accepting multicast packet. Default is set to **Disable.**

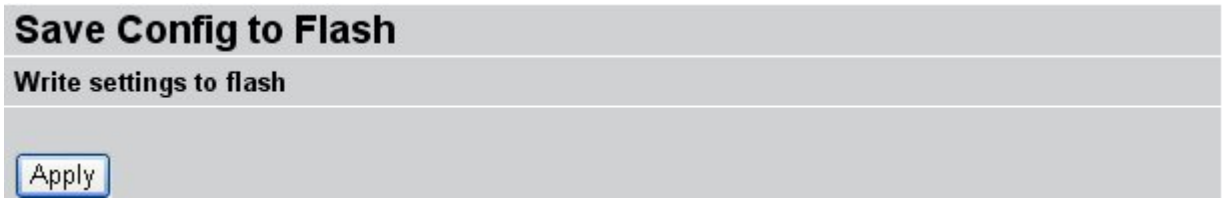
4.3.6.5 WAN IP Change Alert



- Send a log via Email When WAN IP is changed. Default is set to **Disable.**

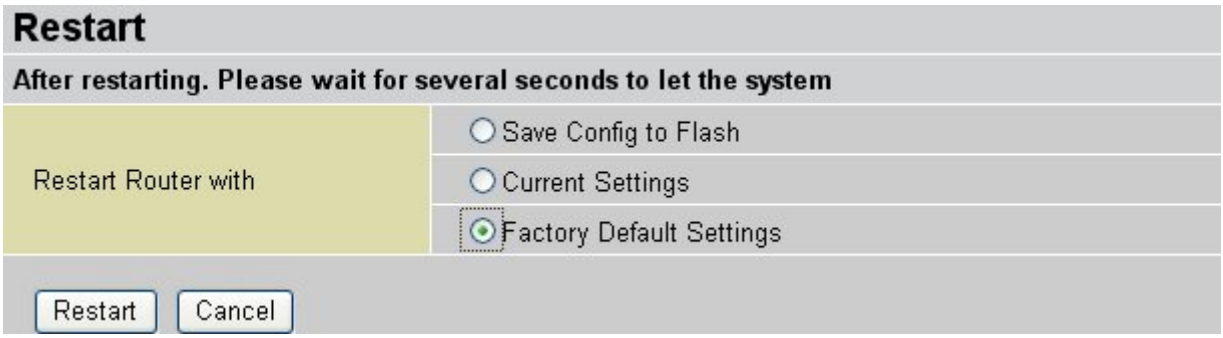
4.4 Save Configuration to Flash

After changing the router's configuration settings, you must save all of the configuration parameters to FLASH to avoid losing them after turning off or resetting your router. Click **Save** to write your new configuration to FLASH.



4.5 Restart

Click **Restart** with option **Current Settings** to reboot your router (and restore your last saved configuration).



If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select ***Factory Default Settings*** to reset to factory default settings.

You may also reset your router to factory settings by holding in the small Reset pinhole button on the back of your router for 10-12 seconds while the router is turned on.

Chapter 5
Troubleshooting

If your ADSL Router is not functioning properly, you can refer first to this chapter for simple troubleshooting before contacting your service provider or support. This can save you time and effort but if symptoms persist, consult your service provider.

Problems starting up the router

Problem	Corrective Action
None of the LEDs are on when you turn on the router.	Check the connection between the adapter and the router. If the error persists, you may have a hardware problem. In this case you should contact technical support.
You have forgotten your router login and/or password.	Try the default login and password, please refer to Chapter 3. If this fails, you can restore your router to its factory settings by holding the Reset button on the back of your router for 6 seconds or more.

Problems with the WAN Interface

Problem	Corrective Action
Initialization of the PVC connection (“linesync”) failed.	Ensure that the telephone cable is connected properly from the ADSL port to the wall jack. The ADSL LED on the front panel of the router should be on. Check that your VPI, VCI, encapsulation type and type of multiplexing settings are the same as those provided by your ISP. Reboot the router GE. If you still have problems, you may need to verify these settings with your ISP.

Frequent loss of ADSL linesync (disconnections).	Ensure that all other devices connected to the same telephone line as your router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including causing frequent disconnections. If you have a back-to-base alarm system you should contact your security provider for a technician to make any necessary changes.

Problems with the LAN Interface

Problem	Corrective Action
Can’t ping any PCs on the LAN.	Check the Ethernet LEDs on the front panel. The LED should be on for a port that has a PC connected. If it is off, check the cables between your router and the PC. Make sure you have uninstalled any software firewall for troubleshooting. Verify that the IP address and the subnet mask are consistent between the router and the workstations.